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Occupational awareness of Singapore primary school children

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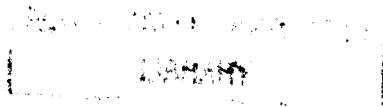
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OCCUPATIONAL AWARENESS OF SINGAPORE PRIMARY SCHOOL CHILDREN



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USE OF THESIS

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ABSTRACT

The introduction of career guidance programmes in Singapore schools had tended to predominantly focus on secondary pupils. The lack of proactive career guidance programmes for the primary school had been due to the misguided belief that children in the primary school still have an extremely long way to go before they enter the workforce, and that their career development had not yet begun. Studies have shown that children have a natural tendency to form firm impressions of occupations early in life. This has resulted in their adopting certain occupations and discarding others before they have fully explored and understood the variety of occupations available. The need for young primary school children -- as future entrants to the workforce -- to keep their occupational options open is paramount given the ever-changing landscape of the future work world.

The purpose of this research project then was to describe Singapore primary school children's career development comprising their gender and social class stereotypes, their occupational understanding in terms of the quantity and quality of occupations that they were aware of, the future occupations these children had selected and rejected, and the supporting reasons these children provided for their selection and rejection of occupations. Gottfredson's (1981, 1996) theory of circumscription and compromise formed the theoretical underpinnings of this research project.

Findings from the survey project showed that lower primary pupils tended to hold more conservative views regarding male-female differences especially in physical appearance and gender-type activities. Older pupils were more liberal in their beliefs. In addition, younger pupils were more influenced by tangible elements of social class differences while older pupils were less influenced. The Singaporean sample ranked "fire-fighter" (a masculine, realistic occupation) above "doctor" (a gender-neutral, investigative occupation). Gottfredson's prestige factors had a greater influence on pupils' occupational preferences and rejections than sextype. Only male pupils allowed sextype to influence their occupational rejections. Other unique factors that influenced Singaporean

pupils' occupational preferences and rejections included altruism, moral and legal factors.

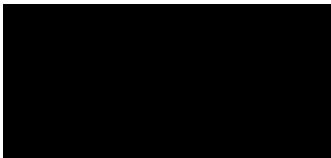
Implications from this descriptive project have included designing career activities where primary school children can learn about the dignity of labour and that all occupations have importance. Boys, especially, need to realise that engaging in "feminine" occupations do not reduce their masculinity.

DECLARATION

I certify that this thesis does not, to the best of my knowledge and belief:

- (i) incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;
- (ii) contain any material previously published or written by another person except where due reference is made in the text; or
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I also grant permission for the Library at Edith Cowan University to make duplicate copies of my thesis as required.



JOY ANG SIEW CHIN

16. 6. 2005

Date

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CHAPTER ONE

Introduction

The Global Environment

Singapore has been swept up into the “digital tornado” a phrase coined by Thornburg (2002) to illustrate the immense impact technology has had on world economies and its effect on “work, education, play, and virtually every other aspect of our life by allowing us open access to information (along with the challenge of maintaining personal privacy)” (p.6). These technological advancements have resulted in increased globalisation, and have also led to rapid economic restructuring in many countries. This intense multiplication and intensification that is taking place has been caused by “connectivity, speed, and intangibles” (Davis & Meyer, 1999, p.6). These three elements interacting with one another have resulted in a new global environment where change is not only a constant but accelerating.

People thus would need to continually renew and adapt their skills to remain relevant in this rapidly changing economic environment. An industry that is currently a ‘sunrise’ one may soon find itself on the decline. Secure employment with one employer has become a thing of the past, and an individual’s career development would be characterised by periods of contract work, dealing with several employers, unemployment, and the need for constant training and re-training to keep pace with the changes. The old paradigm of secure employment for a lifetime would be obsolete.

Future entrants to the work environment would need to develop, early in life, lifelong employability skills that capitalise on:

- self-awareness of one’s interests, abilities, and values,
- an awareness of the opportunities available
- decision making skills to capitalise on the congruency between self and the environment and
- skills to manage the variety of transitions that would occur in the new work environment

As a country with no natural resources except its citizens, Singapore’s primary resource is her people. Although a primary focus of the education

system is on academic learning, since 1984 there has been a growing realisation among educators and government officials of the need to prepare the future generations of Singaporeans, beginning with current and future cohorts of primary school children to learn to navigate and survive in this new employment landscape where both uncertainties and opportunities co-exist.

The Singapore education system then, would need to provide future generations with the “range of essential skills and strength of character ... that will enable them to adapt and thrive in an uncertain and rapidly changing environment...to provide them a diversity of options as they progress through the system...and help them discover different interests and talents in themselves” (Ministry of Education, 2003, p.2).

The Singapore Education System

The current Singapore education system comprise at least six years of primary education followed by either four or five years of secondary education. At the end of their secondary education, students would sit for the Singapore-Cambridge General Certificate of Education 'Ordinary' level, and be eligible for one of three post-secondary options depending on their individual inclinations and qualifications. They can either enrol at the Institute of Technical Education (ITE), a Polytechnic, or at a pre-university educational institution. Pre-university educational institutions comprise either two-year Junior Colleges or three-year Centralised Institutes. At the end of the time spent studying either at the Junior College or Centralised Institute, students would sit for the Singapore Cambridge General Certificate of Education 'Advanced' (GCE 'A') level examination. Students' eligibility for tertiary education would depend on their results obtained in the GCE 'A' level examination.

In response to the future global challenges outlined above, the Ministry of Education has gently tweaked the structured Singapore education system so as to provide greater diversity of programmes and mix of schools. Independent specialised schools such as Singapore's inaugural Sports School, and the National University of Singapore's Maths and Science School have been set up. Currently, the possibility of setting up an Arts School is being studied. These specialised schools are to provide greater opportunities for children with

exceptional talent to reach their full potential in sports, maths and science, and the arts. Besides the curriculum and qualifications offered by the Singapore-Cambridge General Certificate of Education, students can now prepare for alternative curriculum and qualifications like the International Baccalaureate. For extremely bright students who can benefit from a less structured programme, integrated programmes that offer a seamless upper secondary and junior college education had also been initiated in January 2004. Even students in the slower-paced 'normal stream' who show exceptional talent in Mathematics, Science, and Design and Technology, can opt to study for these subjects using curriculum offered to 'express stream' students.

In spite of these changes, the current system of education still over-emphasises the cognitive performance of children. Pupils' placement in the various streams in both primary and secondary schools are based predominantly on how well youngsters perform at national tests and exams. Even entrance to the specialised schools includes potential applicants' performance on end-of-year examinations as part of the application process.

The new world of work, however, is one where outstanding grades in a particular academic area do not necessarily guarantee employment for life. Handy (1996), citing an article from the *Wall Street Journal*, reported that "fully 75% of the newly jobless, a rising figure, are coming from the ranks of managers, professionals, and administrative and technical staff" (p.23). The focus of schools then should move beyond just teaching for examination purposes but to also prepare pupils for entry into this new, ever-changing work environment.

Career Guidance in Singapore Schools

When career guidance was introduced to Singapore schools in 1989, the focus was on pupils in secondary and post-secondary educational institutions. In contrast, the situation within the primary schools was very different. Unlike the secondary schools where a proactive structured programme catering to the career development needs of pupils existed, there were no such programmes being introduced to primary schools.

In 1992, McDonald's Restaurants Pty Ltd developed an educational package titled *When I Grow Up* targeted at Primary Four pupils. This package, endorsed by the Ministry of Education (MOE), provided each Primary Four pupil with an activity book and game-card which helped them learn about 13 jobs found in Singapore. Each primary school was also provided with a few copies of a videotape profiling people working in these occupations, and a teacher's manual so teachers would know how to guide their pupils as they explored these 13 occupations. Although this resource was available, primary schools did not capitalise on this to inculcate occupational awareness amongst their charges in a structured manner. Schools were left to determine how they would use the resources. In many cases, the activity books and game cards were merely distributed to the pupils with little instruction as to how they could be used. It is unfortunate that McDonald's has since stopped producing the activity book and game card for each primary four pupil due to a reduction in funding for community projects.

Starting from 1995, the MOE introduced in phases, a comprehensive lifeskills programme to all primary, secondary, and post-secondary institutions. The purpose of this programme was to enable every pupil to develop competencies in five major areas: personal effectiveness, interpersonal effectiveness, effective learning, transition to work, and fostering a caring community. Although lessons on "transition to work" had been prepared for pupils in primary school, anecdotal reports from guidance specialists from the Ministry of Education had reported that many primary schools had preferred to conduct lessons from all the other areas. This was further supported by a 2002 survey conducted by the Psychological and Guidance Services Branch of the Ministry of Education. It found that "a high percentage of (primary) schools conducted lessons from the following sections - Lifeskills for Interpersonal Effectiveness, Lifeskills for Personal Effectiveness, and Lifeskills for Effective Learning" (Psychological & Guidance Services Branch, 2003, p.2). This unpublished survey report noted that "anecdotal evidence shows that primary schools may also perceive that it is not age-appropriate to address the section, Lifeskills for Transition to Work" (ibid., p.2).

Terminology and Definitions

In Singapore, the term “career guidance” has been used to refer to “a developmental process at each stage of education (primary, secondary, post-secondary) pupils are helped in the development of attitudes, skills, and knowledge which will provide them with the capability to explore, understand, and make informed decisions with regard to their own potential and prospective career” (Psychological & Guidance Services Branch, citing Anthony Watts (1988), 2004, p.2). Career guidance – has also been defined as “a systematic program of counsellor-coordinated information and experiences ... designed to assist an individual to understand and to act on self-knowledge and knowledge of opportunities in work, education ... and to develop the decision-making skills by which to create and manage his or her own career development” (Herr & Cramer, 1996, p.33). From these definitions, it appears that “career guidance” is both a process as well as a programme facilitated by a trained counsellor.

The term “career development” has been defined as “a lifelong behavioural process which lead to persons developing their career identities, occupational choices and other related phenomena” (Herr & Cramer, 1996, p.32). To minimise confusions in terminology, “career guidance” – for this research project - would refer to structured programmes while “career development” would refer to the individual’s natural progression regarding his/her life’s work – independent of interventions - as he/she matures as a person. In other words, a person’s career development would continue “smoothly, jaggedly, positively, (and) negatively” whether or not career guidance exists (Herr & Cramer, 1996, 32).

Herr and Cramer (1996) had clarified that occupations are independent of persons and exist even though no one is engaged in them. In contrast a career exists only when someone is pursuing it (Herr & Cramer, 1996, citing Super (1985b), p.33). In this study, occupations and jobs will be used interchangeably and can include specific job titles (e.g. manager) and/or refer to the professions like “architect”, “doctor”, “engineer”, and “lawyer”.

As the survey research also looked at the possible effects of gender on occupational preferences or choices, there was also the need to clarify between the terms “sex” and “gender”. Berk (1997) has noted that researchers have

either used the terms interchangeably or use the terms in ways that assume a causal relationship between them. A third usage of the terms has resulted in a strong separation between nature and nurture (Berk, 1997, citing Unger & Crawford (1993), p. 502). To overcome unnecessary confusion, Berk had suggested a system where the term “sex” refers to all differences that exist between males and females and do not involve any causal relationships. “Gender” refers to “judgements (that) are made about either biological or environmental causes” (Berk, citing Deaux (1993), 1997, p. 502).

Rationale and Purpose of the Research Study

As mentioned previously, career programmes and activities had largely addressed the career development of pupils in secondary schools. Career guidance and development, however, had not been so well addressed for pupils in the primary schools. Herr and Cramer (1996) have identified the general belief held by many adults that children at elementary or primary school are too young for career guidance. However, they have also described several research studies to illustrate that even if career guidance was not introduced during the elementary school years, “children (did) have such needs” (p.355). The current practice of an ad-hoc approach to career guidance for primary pupils ignores this natural development of career awareness held by them. In light of the rapid changes happening in the work environment, it would be important to introduce comprehensive, structured, proactive career guidance programmes to primary schools.

This had been supported by a recent report released by the Singapore government’s Economic Review Committee (ERC) (2002). The ERC – comprising key government and private sector representatives had recommended that labour market awareness be introduced at the primary school so that future entrants to the workforce can better understand how the workplace is changing, and comprehend the link between school and work. In this way, they can prepare themselves for future challenges by seeing the need for lifelong learning.

The purpose of this research project then was to describe Singapore primary school children’s career development comprising their gender and

social class stereotypes, their occupational understanding in terms of the quantity and quality of occupations that they were aware of, the future occupations these children selected and rejected, and the supporting reasons these children provided for their selection and rejection of occupations.

This descriptive study compared and contrasted the similarities and differences in responses between younger and older pupils, and between male and female pupils. Pupils' gender and social class stereotypes referred to their perceptions regarding male-female and social class differences. The reasons pupils provided for their selection and rejection of occupations were examined to determine whether Gottfredson's sextype and prestige elements would be the only factors that influenced pupils' career preferences, or would other equally important factors be present as well. Research questions that were investigated in this descriptive study included:

1. What were the similarities and differences in perceptions of gender and social class differences held by lower and upper primary pupils?
2. What were the similarities and differences that younger and older pupils had in their occupational knowledge?
3. In what ways were the occupational preferences of lower primary pupils similar and/or different from those of upper primary pupils? Were there differences and/or similarities between boys and girls?
4. Were the occupations rejected by girls similar or different from the occupations rejected by boys? What about occupational rejections between younger and older pupils?
5. Were Gottfredson's gender and social class elements the only factors that influenced pupils' occupational selection and rejection? Or did Singaporean pupils have other important factors that influenced their occupational selection and rejection?

Findings from this descriptive study would be used to indicate the content areas to be covered for primary school career guidance programmes, and the levels at which career guidance could be introduced. Findings would also suggest approaches that could be taken when delivering careers education in primary school.

Significance

American career theorist Linda S. Gottfredson's (1981, 1996) theory of circumscription and compromise formed a theoretical perspective to guide this research project. She had mooted that "youngsters rule out from further consideration progressively more sectors of the occupational world ... before they fully understand them" (1996, p.189). The theory hypothesised how an individual's occupational understanding was reflected in the generalisations he/she made about particular occupations along the dimensions of sex type, prestige level, and field of work. This pool of occupations, which reflected individuals' occupational understanding and from which they would narrow their options from, had been termed by Gottfredson as the "cognitive map of occupations".

The narrowing or circumscription of acceptable occupations took place in three distinct stages. The initial stage began as early as pre-school (i.e. from ages three to five) where the foundations for occupational choice were laid. At this age, children's cognitive development transformed from fantasy occupational roles, which had little link to reality, to intuitive thinking where the child learnt that occupations were associated with becoming an adult. Gottfredson (1981) had noted that for adults, "growing up or becoming a 'big person' were age and time concepts" (p. 559). The child's orientation to adulthood, however, was characterised primarily with size (e.g. big versus little). Since adults were physically larger than children, children came to realise that when one grew bigger, one increasingly had to engage in activities associated with big people. Going to work was one of those activities that big people (or adults) did.

By the time the child entered primary school (ages six to eight), he/she would have discarded occupations that had little link to reality and would have begun to understand that sex roles were related to "that set of behaviours that belong to each sex" (Gottfredson, 1981, p.559). This was stage two of the circumscription process where occupational choice was related to gender type. Here the child's thinking is predominantly concrete and occupational choice is based on choosing the job that is considered the most suitable for his/her

gender. Hence occupations that youngsters did not consider were appropriate for his/her gender would be discarded.

At the upper primary level (ages nine to thirteen), which coincided with stage three of the circumscription process, children were very sensitive to social evaluation, and occupational choice would be characterised by its prestige level (Gottfredson, 1981, p.561). In other words, occupations that did not meet the child's idea of prestige would be discarded.

The circumscription process, as outlined above, is a cognitively challenging one for children. The elements characterising both gender and social stereotypes were often unconscious and reflected in the child's attitudes and beliefs. Gottfredson had presupposed that the development of these attitudes and beliefs would move from the concrete to the abstract in tandem with the child's cognitive development.

Besides gender and social class stereotypes, children's cognitive development would also affect their occupational knowledge. Those, whose cognitive abilities exceeded their chronological ages, may know not only a greater number of occupations but also more sophisticated ones.

Based on Gottfredson's theory of circumscription and compromise, it was believed that the reasons cited for the selection and non-selection of occupations would reflect factors such as children's gender and social stereotypes, their occupational knowledge, and parental influence.

This study thus explored whether pupils of varying ages had different gender and social stereotypes, and different levels of occupational knowledge. The study also investigated whether gender and social class elements were the main factors that would influence primary pupils' selection and rejection of known occupations. Or did other factors influence pupils' occupational selections and rejections. The project also explored and commented on whether circumscription occurred for this group of Singaporean primary school children.

The Research Approach

Creswell (2003) observed that in recent decades "mixed method research has come of age" (p.4). This approach referred to combining

elements of both quantitative and qualitative approaches in a single study and allowed limitations inherent in one approach to be neutralised in another approach (Creswell, 2003, p.15). An advantage of using a mixed-method approach was its ability "to capture the best of both quantitative and qualitative approaches" (Creswell, 2003, p.22) in order to better understand a research problem.

As the research questions appeared to require both quantitative and qualitative responses, data collection incorporating both approaches was implemented concurrently through the use of a survey questionnaire involving both closed and open-ended questions. In addition, descriptive statistics were applied to describe the profile of pupils involved in the study. Details of the methodology are described in chapter three.

Answers to the above research questions have provided insights into the career development of primary pupils, especially in terms of their career preferences and the gender and social class stereotypes held by primary school pupils. Research findings also provided a snapshot of pupils' occupational knowledge. The study also explored whether sex-type and prestige had an influence on Singapore pupils' occupational selections and rejections, as hypothesised by Gottfredson; or whether other equally pertinent factors had influenced these pupils' occupational selections and rejections.

The research project was undertaken to provide evidence and data to better inform principals and teachers of primary schools and to encourage them to consider introducing career guidance programmes. Information gathered would also support curriculum development through the identification of suitable career education topics that could be taught in order to facilitate student career development.

By the time primary pupils are ready to enter the world of work; the employment environment facing them would be drastically different to what it is currently. It could be an environment where unemployment may be the norm and constant learning and retraining is the only means to stay employable. In light of the rapid changes happening in Singapore's future employment landscape, it is important that the effect of these stereotypes is minimised, and

pupils are taught to obtain better occupational knowledge before choosing their occupational preferences.

Summary

Singapore's only resource is her people. In a modern, rapidly changing work environment where the "digital tornado" has impacted all aspects of life, people need to be adaptable and remain open to opportunities. According to L. Gottfredson, career circumscription occurs early in a child's career development. Career programmes introduced during the primary years of education would be to prevent premature closure to occupational possibilities, to enhance flexibility, and to keep the minds of young people open to occupational opportunities in the future.

This study explored and documented the occupational understanding and perceptions of primary aged pupils in Singapore.

CHAPTER TWO

Literature Review

The New Landscape for Work

The employment landscape of the twenty-first century is characterised by rapid changes that have been created by the twin forces of globalisation and technological advances. Handy (1989) has written that technology and economic realities are “potent blends” which are the primary triggers for discontinuous change to happen (pp. 11 – 13). Discontinuous change, in contrast to continuous change, describes conditions in which change no longer happens incrementally but exponentially. Countries, companies and business organisations can no longer rely on historical signposts to guide them into the future. Competitive advantages no longer reside in the possession of raw materials, factories, and other tangible capital. Instead countries, companies, and individuals who possess intellectual capital are forging ahead.

This new world order can no longer provide workers with the assurance of one job for life. Instead, they would contend with frequent periods of unemployment, contract work, and the constant need for lifelong learning to stay abreast in their areas of competence. The new workplace has become a marketplace where workers with relevant work skills and competencies offer their services to companies and organisations in need of these skills. A change in behaviour where exploration, creativity, and invention/reinvention would be the qualities that would help workers survive in this new marketplace. “Young people, in particular, face a world very different from the one their parents grew up in, a world where they really do have to re-invent their lives, their purposes, their standards, and their priorities” (Handy, 1994, pp.15-16). The young work entrant then has to learn to exhibit “more loyalty to the work, and not to the employer...” (Handy, 1989, p.68).

Career Guidance for Primary Schools

When career guidance was introduced in Singapore, the focus was on pupils in secondary schools. Teachers in secondary school were appointed as Career Guidance Coordinators (CGCs) and given training in the fundamentals

of career guidance. Facilities such as career rooms were set up so that secondary school students could have access to career resources and be guided through relevant career activities by CGCs to help them plan for their future.

In contrast, primary schools were not included in the systematic introduction of career guidance to schools. The sole project directed at primary schools was the distribution of career guidance materials to primary 4 pupils. The distribution of these resources, however, has since discontinued.

Gibson, Mitchell, and Basile (1993) have noted that even if elementary schools do not have planned, systematic career guidance programmes, pupils' career development would still take place. With the introduction of flexible and diverse structures into the Singapore education system so that pupils of widely differing abilities can access alternative education pathways to tertiary education, and the work landscape constantly evolving and changing rapidly, career guidance has taken significant importance for the future entrant into the workforce. The primary school child of today, who is the future workforce entrant, would need to comprehend and understand how factors in the external environment – such as changing economies, the disappearance and emergence of new occupations, their training requirements – would influence his/her future career decisions. With increasing complexity in career preparation, Gibson et al (1993) have recommended that preparation of our young “to cope with the complexities of both career choice and preparation ... should begin in the early years of his or her elementary schooling” (p.191).

Staley and Mangieri (1984) quoting Hoppock (1967) have noted that even before children are ready for large amounts of occupational information, they “acquire impressions of work people do in ... occupations, the kinds of people employed, the compensations offered, and the abilities that are required for acceptable performance” (p.201). It is these impressions that influence children to either consider certain occupations for them for the future, or to reject other occupations from further consideration. Staley et al (1984) also shared the responses of an informal survey conducted by a children's librarian on what elementary school pupils would want to be when they grew up. It was found that “most of the children's answers fell into the doctor-teacher-fireman

category” which were not much different from responses of pupils who had taken the survey in previous years. In light of this natural narrowing of occupations, Gibson et al (1993) have suggested that “the elementary school guidance programme can contribute to broadening the career understandings of youth...” (pp 191-192).

This introduction of career guidance at primary school is even more critical given the rapidly changing landscape as a result of globalisation and technology. Young children’s narrowing of their occupational preferences takes place even though they have yet to gather and learn all relevant information regarding occupations. Career guidance at primary school then is to introduce and encourage the apparent “unnatural” broadening of occupational preferences.

The recently published *Education and Career Guidance: a reference guide* by the Psychological & Guidance Services Branch (PGSB) of the Singapore Ministry of Education has noted that “awareness of and interest in careers start early in life, even as early as the pre-school years. This is evident when children adopt roles that they have observed during the day in their play, such as teacher, nurse, doctor, and shopkeeper. Therefore, beginning educational and career guidance in primary schools is not too early to start” (PGSB, 2004, p.6).

Career Theories

Gottfredson’s Career Theory

Gottfredson’s (1981, 1996) theory of circumscription and compromise has noted that youngsters discard possible occupations based on two factors – their gender and social class. These elements are part of a person’s self-concept which she has defined as “one’s view of who one is and who one is not ... (and) also includes who one expects or would like to be” (1981, p.547). It can be seen that Gottfredson’s definition of self-concept includes both a present and future dimension. Although many elements make up a person’s self-concept, the ones that have primary relevance to his/her future career are “gender, social class background, intelligence, and vocational interests...” (Gottfredson, 1981, p.548). These constructs of the self-concept can be

classified into both public or external attributes (such as gender, and one's place in society) and personal or internal attributes (for example one's personality, values and abilities). Although Gottfredson has acknowledged that internal attributes are important, her theory emphasizes the individual's career choice as being first and foremost the result of implementing the public aspects rather than the personal aspects of their self-concept.

She has theorized that the social group to which the child belongs to asserts a stronger influence over the child's views of the various occupations, than the child's personal characteristics. In other words, Gottfredson feels that "career development is an attempt to implement primarily a social self and only secondarily a psychological self" (1996, p.181). A person's public self, then, comprises his/her increasing awareness and understanding of his/her gender identity and the concept of social valuation or class. These externally motivated factors – the individual child's growing understanding of his/her gender identity and social valuation - is underscored more by his/her cognitive ability than his/her chronological age. It might, thus, be possible to have chronologically younger children being able to list sophisticated job titles (e.g. child specialist, pediatrician) and choosing these jobs based on perceived prestige associated with the job title, while concurrently discarding less sophisticated job titles (e.g. doctor).

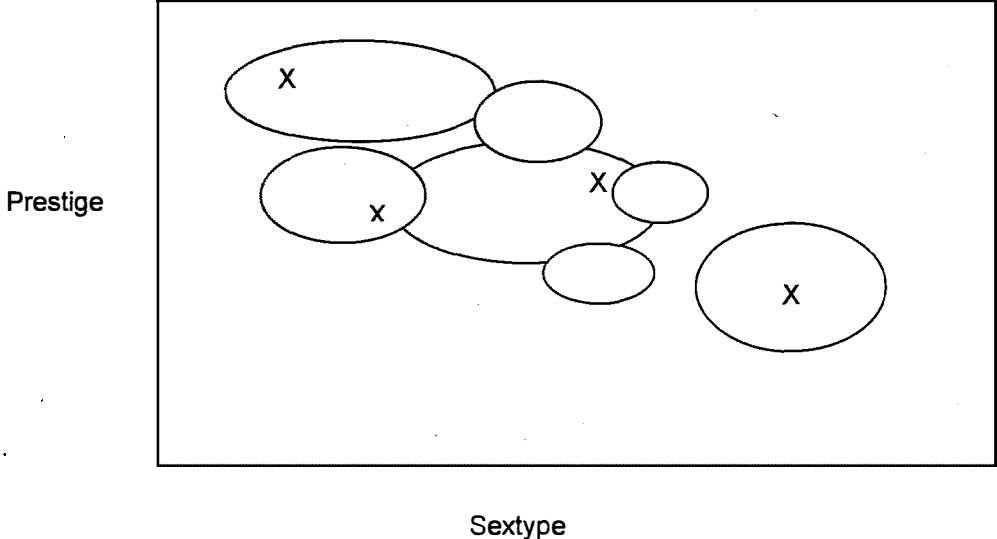
Occupational Choice

According to Gottfredson (1996), although individuals' images of various occupations are held along a variety of dimensions, it is the dimensions of "masculinity/femininity (and) prestige level (i.e. how desirable the occupation is to the individual ... "(p.184) that influence individuals' occupational choices. These dimensions of occupational prestige and gender-type can be captured onto a two-dimensional "cognitive map of occupations" (Gottfredson, 1996, p.184). As children progress in their cognitive development, their growing understanding of appropriate gender roles, and their increasing comprehension of their social class would result in the narrowing of their acceptable occupational aspirations from this generalised "cognitive map of occupations" into a "zone of acceptable alternatives" (ZOAA). The ZOAA thus refers to those acceptable occupations that people think reflect their social positions and

gender roles. An individual's career aspiration is thus the single alternative from the ZOAA at a particular instance (Gottfredson, 1996, p.187).

Figure 2-1 below is an attempt to visually illustrate the above paragraph. The large rectangle box represents the two-dimensional “cognitive map of occupations”. From this map, individual children would develop their unique ZOAAs (as represented by the various circles). The “X” in each circle represents individual pupils’ occupational aspirations at particular points in time. At another point in time, these occupational aspirations can change. In other words, as a child’s perspective on the suitability of occupations changes, their occupational preferences would also change. Gottfredson’s theory, then, views a person’s occupational aspirations as “territories rather than points of reference” (Gottfredson, 1996, p.187).

Figure 2-1.



In summary, Gottfredson's theory implies that occupations individuals aspire towards would increasingly narrow as they grow older and begin to comprehend the increasing influence of their genders and social classes on the perceived prestige and sex-types associated with various occupations.

Gottfredson has also theorised that the "progressive elimination of unacceptable alternatives" takes place through four stages. She has indicated that at each stage, the elimination of occupations is an irreversible one. Although each stage has approximate age and school-level associated with it, Gottfredson has emphasised that these are “somewhat arbitrary because

youngsters differ considerably in mental maturity at any given age" (1996, p.191). In other words, the youngster's cognitive ability has a greater influence on his/her occupational understanding than his/her chronological age. This was illustrated with a simple example earlier.

Stage one, which occurs during the pre-school years, is where children learn that careers are associated with the adult world as their cognition begins to comprehend the concepts of size and power and their relationship to adulthood. The impact on their career self-concept is an increasing understanding that work is associated with growing up. Thus children would gradually cease aspiring to become "animals, fantasy characters, or inanimate objects when they grow up" (Gottfredson, 1996, p.191). In other words, children would eliminate occupations which do not have any relation to adulthood. Applying this to children's occupational self-awareness, it would not be unreasonable to expect children to know that growing up is related to becoming physically bigger and having more power. Children would also be aware the growing up is also associated to getting a job and earning money.

Stage two, which occurs at the lower primary school years (i.e. from ages six to eight), is where children's understanding of the appropriate behaviours related to one's gender is established. As a result, they would only consider occupations that are gender appropriate. Gottfredson has termed this stage as a time when young people establish their "tolerable-sextype boundary" (p.192). Cognitively, children are able to understand the meaning of sex-roles and the appropriate behaviours related to each gender. As a result, children would actively reject cross-sex occupations (i.e. those that are not appropriate for their own genders). In other words, there are occupations that children would reject simply because they perceive that the behaviours associated with that occupation is not appropriate for their gender. For example, nursing is generally perceived as a predominantly female-oriented occupation due to the larger proportion of females than males. Hence even though a boy may have an interest in the occupation and the requisite skills and qualities, nursing would not even be considered as a career possibility if he perceives male nurses are a "sissies", and is told by his parents and other significant adults that it is not an appropriate occupation for males.

Stage three of Gottfredson's theory, which occurs at the upper primary school years (i.e. from ages nine to thirteen), is where the comprehension of social class begins and becomes more established as children's increasing cognitive development gradually enables them to understand more abstract concepts. Children, at this stage would eliminate occupations that are perceived as being low status or incompatible with one's social class. This development of social evaluation begins when children start to realise that different occupations have different prestige levels associated with them. They also gradually learn that prestige levels are also linked to the social class and ability levels of the people working in the related occupations. Gottfredson (1981), citing the work of Goldstein & Oldham (1979) and Stendler (1949) had provided examples of symbols delineating social class: education, occupation, income, place of residence, and clique membership (p.561). She had mooted that children's readiness to recognise these symbols are largely influenced by the individual child's cognitive ability. Less cognitively-able children would focus on more concrete symbols of social class (e.g. "clothing, rough behaviour, possessions brought to school"). As children grow older and their cognitive abilities become more sophisticated and more able to grapple with abstract concepts, they become more cognizant "that there is an occupational hierarchy that affects how people live their lives and are regarded by others" (Gottfredson, 1996, p.193). Like their older counterparts, children who are more cognitively able would also be able to recognise these abstract symbols of social class and make the connection between their socio-economic group and wealth, education, and jobs. Occupations that are considered too low for one's perceived socio-economic status would be rejected. In other words, children would reject occupations that they think their parents and community would not approve of. Besides a growing understanding of the pecking order of occupations' prestige levels, children would also have a growing understanding of their own abilities. Those occupations that are deemed too hard would also be rejected. This is the period where both the "tolerable-level boundary" and the "tolerable-effort boundary" are established (p.193).

The fourth and final stage, which occurs during the secondary school years, is when teenagers begin to orient themselves to their "internal, unique

self" (p.194). This is the stage where the process of compromise begins and teenagers begin to review only the occupations within their ZOAA. In other words, "occupational exploration (thus) is confined to the ZOAA (social space) circumscribed at earlier stages" (1996, p.195). As teenagers incorporate increasingly abstract qualities into their career self-concepts, they would discard those occupational preferences – within the ZOAA – which are considered incompatible with their individuality. Gottfredson expects a greater number of young adults to be at this fourth and final stage than teenagers "because they are older and more intelligent on the average than high school students (1981, p.566). As the research sample for this research study is primary school children, stage four of Gottfredson's developmental theory of circumscription would not be relevant.

Although age estimates have been provided for each stage of the circumscription process, these may not be adhered to when the cognitive abilities of children differ markedly and the progression through the various sequences happens at different rates. According to Gottfredson, the markedly different rates of progression through the various stages of circumscription rest on the child's capability to deal with abstraction. Thus "by early adolescence, some youngsters will function mentally like college students and others more like children in the fourth grade or below" (Gottfredson, 1996, p.189).

Gottfredson (1996) has admitted that the circumscription process is cognitively a very complex one which "requires perceiving and understanding properties of self, occupations and the place of both in the social world" (p.189). The individual cognitive ability of children would then determine the degree of complexity they hold of images of themselves and its relation to work. Nonetheless, it appears natural that premature conclusions regarding the acceptability and unacceptability of occupations are drawn before children are developmentally ready. Gottfredson has felt that the influence of age and individual differences on cognitive development in the circumscription process has remained largely unexplored.

The strong emphasis on cognitive abilities in the Singapore education system and the streaming of Singapore primary school pupils into different ability streams might provide the opportunity to investigate the influence of age

and individual differences on the circumscription of occupations by young pupils.

Super's Life-span, Life-Space Approach to Careers

Super has been attributed with introducing a developmental perspective and indicating that occupational choice is "an unfolding process, (and) not a point-in-time event" (Super, Savickas, & Super, 1996, p.122). His theory has three dimensions intersecting with one another: life-space, life-span, and self-concept that comprise an individual's career development. Of these three dimensions, the most relevant for this research study would be self-concept.

The individual's self-concept provides both the content for and outcomes of occupational choice. The content for occupational choice refers to the abilities, interests, and values possessed by individuals. According to Super et. al (1996), an individual's self-concept comprises his/her occupational identity and occupational self-concept. Occupational or vocational identity is defined as the "possession of a clear and stable picture of one's goals, interests and talents" (Super et.al, 1996, citing Holland (1985a, p.5) p.137). Occupational identity, then, consists of "occupationally relevant traits ... that are formed by observers or by the self based on feedback from others" (Super et. al, 1996, p.137). It therefore refers to the "self" that is objective and known to the public. In contrast, the occupational self-concept refers to the "self" that is subjective and private, and known only to the individuals. It is the individual's perspective and understanding of his/her interests and abilities, and how these qualities are used in the pursuit of goals and values (Super et. al, 1996, citing Savickas, 1995a, p.139). Super's public vocational identity relates to Gottfredson's external attributes of the self-concept, and as Gottfredson has theorized, asserts a stronger influence on occupational choice than the internal attributes of the private – known only to self - occupational self-concept.

Gender Stereotypes

Berk (1997) defined gender stereotypes as "widely held beliefs about characteristics deemed appropriate for males and females" and gender-role identity as the "perception of self as relatively masculine or feminine in characteristics, abilities, and behaviours" (p.502). This meant that the

behaviours exhibited by male and female pupils were the result of how these pupils thought and felt each gender ought to behave.

Berk has also noted that children's mastery of gender stereotypes begin the moment they are able to comprehend and use categories such as "man", "boy", "girl", and "woman". This understanding would gradually broaden to include activities and behaviour related to each gender. For example it was found that children in preschool were able to associate – with either male or female - a variety of items ranging from toys to clothing articles, to colours, games, occupations, household items, and tools (Berk (1996), citing Huston (1983), and Picariello, Greenberg, & Pillemer (1990), p.503).

Gottfredson (1981) had highlighted that pupils' development in beliefs related to gender differences were closely associated with their cognitive development. Citing Kohlberg (1966), Gottfredson noted that younger children were more insistent on behaviours appropriate for their sex and tended to view them as "moral imperatives" or a "set of rules for behaviour" (1981, p.559). This rigidity was due to young children's concrete thinking where the initial focus was on more visible cues such as clothing and more obvious activities. It is therefore not uncommon to find 4-year-olds exclaiming that "men do not wear skirts" when shown a picture of a Scotsman wearing a kilt (Berk, 1996, p.504).

This rigid thinking has also been further confirmed by studies conducted by Biernat (1991a) and Martin (1989) where the target child was of one particular sex, and researchers then provided both typical and atypical information about this target child's characteristics. It was found that the belief system of preschoolers' gender differences operated like "blanket rules rather than flexible guidelines". It was also found that "by age 5, gender stereotyping of activities and occupations is well-established" (Berk, 1996, p.504). However, as cognition improves, knowledge of gender stereotypes of more abstract areas - such as personality traits and achievement areas - would grow. Older children would also realise that gender-stereotypic characteristics are less definitive and more associative.

As mentioned above, beliefs relating to male and female differences exist in personality characteristics or traits. Berk (1997) citing several studies spanning the 1960s, 1970s, and 1980s (Golombok & Fivush, 1994; Lutz &

Ruble, 1995) found that instrumental characteristics such as assertiveness, competence, and rationality were generally considered masculine, while expressive traits such as being caring, warm, and sensitive were considered feminine. Besides longitudinal research, Berk also cited Williams & Best (1990) who had conducted a 30-nation cross-cultural study and found that "the instrumental-expressive dichotomy is a widely held stereotype around the world" (1996, p.503).

Another difference in male and female beliefs includes skills and subject areas associated with "masculinity" and "femininity". Eccles, Jacobs, & Harold (1990), Stein (1971), and Stein & Smithells (1969), as cited by Berk (1997) found that while children are in school, they regarded "reading, art, and music as more for girls and mathematics, athletics, and mechanical skills as more for boys" (p.505). The association of "feminine" and "masculine" subjects was also found in a tri-nation study involving school children in Japan, Taiwan and the United States. Berk (1997) citing Lummis & Stevenson (1990) reported that the researchers had asked both female and male pupils in these three countries "to name the school subject they liked best" and found that female choices tended to be in reading while male choices were in mathematics (p.505). These pupils were also asked to predict how well they would perform in their favourite subjects when they reached high school. It was found that "boys thought they would do better in mathematics than did girls ... (but) no sex-related difference in favor of girls emerged in predictions about reading" (Berk, 1997, reporting the study done by Lummis & Stevenson (1990), p.505). It was also felt that the personality trait of "achievement" being attributed to males would be acquired by school children during their middle primary school years. Berk (1996), citing Nemerowicz (1979), also felt that primary school children tended to attribute female failures due to ability while male failures, were due to insufficient effort or learning (p.505).

Goffredson (1981) felt that the lack of clarity regarding the developmental course of gender stereotypes was due to the different methods used to "capture different aspects of development that are differentially sensitive to cognitive development" (p.559).

The application of this understanding related to gender differences was used to develop the sequence of gender-related statements found in part A of the survey questionnaire. The series of studies cited by Berk (1996) above were conducted using a “force-choice technique” and this influenced the manner in which survey participants would respond to the statements.

Overseas Research

Much of the empirical studies carried out to test Gottfredson's theory have centred either on high-school adolescents, college undergraduates and/or adult populations (Post-Kammer & Smith, 1985; Hannah & Kahn, 1989; Leung & Harmon, 1990; Leung & Plake, 1990; Hesketh, Elmslie & Kaldor, 1990; Hesketh & McLachlan, 1991; Lapan & Jingeleski, 1992; Leung, Conoley & Scheel, 1994). Most of the research was also carried out in English-speaking countries like the United States, Canada, and Australia with predominantly Caucasian participants.

Only one study in the United States was done amongst Asian-Americans undergraduates (Leung, 1993). It was found that although individuals did narrow their occupational preferences during their pre-primary and primary school years, there was a period of expansion in occupational options during the period when Gottfredson indicated that the process of compromise should be starting. Leung's study also supported earlier studies conducted by Leung and Harmon (1990), and Leung, Conoley, & Scheel (in press) (1990, pp.188 & 191). Another key finding was that “prestige is a very important variable affecting the career behaviour of Asian Americans” (Leung, 1990, p.192). He has also postulated that Asian-Americans might focus primarily on prestige to the exclusion of other factors – such as aptitudes and interests - in career decision-making. Although Leung's 1990 study did investigate the circumscription process during the individual's childhood years, the method employed was having “undergraduates ... who were asked to recall retrospectively whether they have ever considered a list of 155 occupations ...” (p.189). The disadvantage to this methodology was that it assumed that research participants were able to accurately recall their childhood occupations.

Another study carried out in New Zealand focused on primary school children (Henderson, Hesketh & Tuffin, 1988). The sample consisted of a total of 396 pupils ranging from 5 years old to 15 years old. Results found that “although girls were sex typed in their occupational preferences, they were more flexible than were boys” (p.45). The researchers had cited Feinman (1981) to indicate that “there may be less social disapproval for girls that do not conform with traditional stereotypes than for boys” (p.46). The study, however, did not explore the factors that led to the differences between girls and boys. The results have also shown that the development of New Zealand children’s career self-concept did follow Gottfredson’s stages (i.e. sex-stereotyping occurs before socioeconomic status) but the age at which these behaviours occurred were earlier than those proposed by Gottfredson. Henderson, Hesketh, and Tuffin (1988) have indicated that “schools have a critical role to play in counteracting the restrictive influence of sex typing and socioeconomic background on (career) preference, or at least in raising pupils’ awareness of the limiting influence of these factors” (p.46).

A second study on primary school children was conducted by McMahon, Carroll, & Gillies (2001) in Australia. This study focused on sixth-grade children and examined their occupational aspirations in terms of occupational category, minimum education level, and gender. The study also identified the information sources these children used and the factors that they thought could influence them either towards or against occupations. The findings showed that the children were able to list a total of 314 jobs with the girls listing 127 jobs and the boys, 187 jobs. The category of jobs that had the highest number of jobs listed was “health, community, and welfare services (15%)”. This was followed by “law and security” (14%), “art, craft, music, dance, and drama” (13.4%), and “agriculture, animal studies, and natural resources” (12.4%).

The study also found that the most popular source of occupational information that both girls and boys used was the media such as books, the television, movies, newspapers, advertising, and magazines. For the girls, however, their second most popular information source was “life experiences” while for the boys, their second most popular information source was family members, with the father being the member most sought.

McMahon, Carroll, and Gillies' (2001) study found that the most frequently nominated occupations were "lawyer, medical doctor, and veterinarian" (p.30). They also found that "sportsperson" was an occupation nominated only by boys, while girls also did not mention any military occupations. These findings were consistent with studies cited by McMahon et al such as those conducted by Bobo, Hildreth, & Durodye (1998) and Phipps (1995). McMahon et al's study also supported Gottfredson's theory of circumscription where "children reject jobs that they perceive are the domain of the opposite sex" (2001, p.30).

Singapore Research

In Singapore, majority of career research has also tended to focus on adolescents and adults (see Tan, 1992, and Tan & Goh, 2001 for a comprehensive review of research on vocational psychology research conducted in Singapore). Tan & Goh (2001) found that "landmark career development theories" as postulated by Gottfredson (1981), Holland (1966) and Super (1983) had general relevance and applicability to Singapore's multiethnic, Asian population (p.64). Hence using Gottfredson's theory to guide this research study on Singapore primary school children is theoretically sound.

Amongst the many vocational research studies carried out in Singapore, only one study focusing on occupational stereo-typing amongst Primary Four pupils had been done (Choong, 1990, as cited in Tan, 1992). The 1990 study involved only 82 primary 4 pupils, aged about 10 years old, from one school. These pupils were requested to determine the gender suitability of 22 occupations commonly found in Singapore. Occupations which were considered equally suitable for both sexes included "author, cleaner, salesperson, school teacher, cashier, choreographer, veterinarian, architect, optician, photographer, and police officer" (Choong 1990 as cited in Tan, 1992, p.169). The findings also showed that boys generally had more traditional thinking as compared to girls but no reasons were offered as to why this was more so.

The willingness of Singapore girls to consider cross-gender occupations has been supported by studies conducted by Khor (1994) and Yeo (1991), as

cited in Tan 1992. The study by Khor (1994) was to check the validity of Gottfredson's theory amongst 1,695 secondary four students in Singapore. Students in secondary four are generally between 16 – 18 years old. He administered a questionnaire seeking their choice from options ranging "from their ideal (most desired) job, to the realistic (expected) job, and to what is just acceptable (tolerable) job." His findings showed that "males generally preferred male-dominated and sex-neutral occupations (while) females were more willing to choose cross-gender occupations than males" (as cited in Tan and Goh, 2001, p.66).

Yeo's (1991) study focused only on secondary four girls. Her small sample of 90 female students showed that 64% were willing to choose traditionally male dominated occupations such as "architects, lawyers, businessmen, chemists, and research scientists" (as cited in Tan, 1992, p.169). It is also interesting to note that older girls tended to view architects as being male-oriented while primary pupils viewed this same occupation as being gender-neutral (see Choong's (1990) study as cited above). Yeo, however, found that girls who were willing to opt for male-dominated occupations tended to have both parents who were "highly educated and held professional or managerial jobs". These girls were also considered by the researcher as "high achievers" (cited by Tan, 1992, p.169). It can thus be seen that amongst Asian students, the role of parental influence on vocational decisions may be strong. Rice (1996) citing studies by Lopez and Andrews (1987), and Young and Friesen (1992) has found that parents exert their influence on children's vocational development through a variety of ways ranging from the inheritance of the family business to apprenticeship opportunities to the encouragement of interests and activities, and through role modeling (p.403).

Berk (1997) citing several studies that explored the relationship between working mothers and their influence on their children's vocational development (Beyer, 1995; Goldberg & Easterbrooks, 1988; Hoffman, 1989; and Williams & Radin, 1993) has found that positive outcomes are benefited more by daughters than sons. This could be due to daughters' perception of their mothers' competence. As a result, many daughters have "higher educational aspirations and ... are more likely to choose nontraditional careers such as law, medicine

and physics" (p.566). These support the findings in the study conducted by Yeo (1991) where she found that cognitively more able girls were greatly influenced by their well-educated parents.

Occupational Prestige and Sex-types

In a study conducted in Singapore on occupational prestige and occupational structure, Chiew, Ko and Quah (1991) have indicated that social class comprises three essential dimensions – occupational prestige, education and income. Of these three dimensions, "occupational prestige is the most difficult to assess" (p.61). Chiew et al then proceeded to determine and measure occupational prestige and found that Singaporeans ranked professionals as most prestigious followed by businessmen and administrative officers. Occupations that had the lowest prestige ratings were those that were illegal or immoral. Examples of these include waitress, social escort, masseuse, and bargirl amongst others. In addition, the authors also determined the criteria that respondents used when rating an occupation as "excellent", "average" or "poor". It was found that for occupations rated "excellent" and "average", respondents tended to use a combination of criteria that included education/intelligence, income/wealth, and status/social recognition. For occupations that they rated "poor", it was "moral and religious values" that was the major criteria (Chiew, Ko, & Quah, 1991, p.47).

Gottfredson (1996) has stated that "occupational prestige ... mirrors the intellectual complexity of work, so the prestige dimension is equally an ability dimension" (p.184). The findings from the study by Chiew, Ko and Quah (1991) support Gottfredson's statement that an element of occupational prestige was ability.

The Singapore Standard Occupational Classification (SSOC) 2000 is Singapore's "national standard for classifying statistical information on occupations..."(p.1). Classification of the various occupations into nine major classifications was determined using the principle of "skill level". There are a total of four skill levels and operationally, each level differs depending on the "function of the complexity and range of the tasks and duties involved (and) the field of knowledge required, the tools and machinery used, the materials worked

on or with, as well as the kind of goods produced” (SSOC, 2000, p.4). The requirement of educational qualifications was used to operationalise each of the four levels. The lowest skill level is level one and refers to work that requires either primary or no education to get the tasks completed. The highest skill level is knowledge, duties and tasks that require “tertiary education leading to a university or postgraduate university degree or the equivalent” (SSOC, 2000, p.5). Table 2-1 below describes the major occupation groups and their related skill levels.

Table 2-1

Descriptions of Occupation Groups and Skill Levels

Occupation Groups¹	Description	Skill levels	Description
2	Professionals	4	Tertiary education “leading to a university or post-graduate university degree or equivalent” (SSOC, 2000, p.5)
3	Associate Professionals & Technicians	3	Tertiary education “leading to an award not equivalent to a first university degree” (SSOC, 2000, p.5)
4	Clerical workers	2	Secondary or post-secondary education
5	Service Workers & Shop & Market Sales Workers	2	Secondary or post-secondary education
6	Agricultural & Fishery Workers	2	Secondary or post-secondary education
7	Production Craftsmen & Related Workers	2	Secondary or post-secondary education
8	Plant & Machine	2	Secondary or post-

¹ SSOC (2000) has noted that occupations from major groups 2 to 9 (i.e. “professionals” to “cleaners, labourers, and related workers”) can be categorised according to the four skill levels.

Occupation Groups¹	Description	Skill levels	Description
	Operators & Assemblers		secondary education
9	Cleaners, Labourers & Related Workers	1	Primary or no education

Only occupations in group 1 did not have a skill level related to it as it was felt that "the concept of skill level is not applicable" (SSOC, 2000, p.6). Occupations in group 1 refer to "legislators, senior officials and managers" (ibid, p.2). However for the purpose of this study, it can be assumed that skill level 4 would apply to group 1 as well.

The above table would be used as a guide to assess pupils' responses regarding the prestige levels of their listed occupations. It can be assumed that occupations in groups 1, 2 and 3 can be classified as "medium-high to high" prestige while occupations in groups 4 to 8, "medium to low" prestige. Occupations in group 9 can be classified as "low" prestige occupations.

In a paper titled *Occupation Segregation: A Gender Perspective*, produced by the Manpower Research and Statistics Department (MRSD) of Singapore's Ministry of Manpower, occupation segregation has been defined as "the tendency for men and women to be in different occupations" (2000, p.1). Total segregation is when one or the other gender is the exclusive staff for an occupation. In contrast, when the ratio of male to female in an occupation is the same as the proportion of male to female in the workforce, there is no segregation.

One measure of occupational segregation used in Singapore is the representation ratio which is "the proportion of females in an occupation divided by the proportion of females in the entire workforce ... a representation ratio of less than one (greater than one) means that women are 'underrepresented' ('overrepresented') in that occupation, relative to their percentage in the workforce." (MRSD, 2000, p.5).

When the representation ratio (reflected in bracketed figures in the listings below) was calculated for each of the occupational groupings defined in

the SSOC 2000, it was found that women tended to be underrepresented in the following occupational groupings:

1. Administrative and managerial (0.58): slightly more than half of all working women are represented in administrative and managerial positions.
2. Professionals (0.75): three-quarters of all working women are represented in this occupational grouping.
3. Production craftsmen and related workers (0.18): only 18% of all working women are represented in occupations related to being production craftsmen and
4. Plant and machine operators and assemblers (0.82): 82% of all working women can be found working as plant and machine operators, and assemblers.

Almost as many women in the total workforce can be found in the following occupational groupings:

1. Associate professionals and technicians (0.96): the proportion of women working in this occupational group is about the same as the total proportion of women in the workforce, and
2. Service and sales workers (0.92): the proportion of women in this occupational group is about the same as the total proportion of women in the workforce.

The following two occupational groupings have an over-representation of females as denoted by their representation ratios of greater than one:

1. Clerical workers (1.66): the proportion of women in this occupational group is 1.66 times more than the proportion of women in the workforce, and
2. Cleaners, labourers, and related workers (1.44): the proportion of women in this occupational group is 1.44 times more than the proportion of women in the workforce.

The representation ratios related to each occupational grouping would be used as proxies to determine whether an occupation is predominantly masculine (where females were underrepresented), predominantly feminine (where females are overrepresented), or neutral (where there is equal representation of both males and females). These representation ratios were related to the occupational categories found in the SSOC 2000. Again, the

representation ratios of the related occupational groupings would be used as a guide to assess the sex-type dimensions of pupils' articulated occupations.

Parental Influence

Herr and Cramer (1996) have noted that children's relationships with their parents, especially parents' attitudes towards school and work, have an effect on pupils' career development. They cited Peeks (1993), who reported that "decades of research document that families are critically important to the academic success of students..." (Herr & Cramer, 1996, p.354). Peeks' report seemed to support a newspaper article on success written by Alan Krueger from *The New York Times* (as cited in *The Straits Times*). Krueger's article acknowledged the work of Professor Gary Beck of the University of Chicago, who pioneered "the economic theory of intergenerational transmission of economic status". It was reported that economic status of fathers was transmitted for at least two generations. The rate of transmission, however, decreased with each subsequent generation. Studies investigating the link between fathers' and daughters' incomes showed equally strong correlations. It has also been found that irrespective of socio-economic class, the correlation between generations is just as strong. Krueger cited the work of Professor Thomas Hertz of American University who found that

"a child born in the bottom 10 percent of families ranked by income has a 31 percent chance of ending up there as an adult and a 51 percent chance of ending up in the bottom 20 percent, while one born in the top 10 percent has a 30 percent chance of staying there and a 43 per cent chance of being in the top 20 percent".

Possible reasons included the "inter-generational transmission of cognitive ability and educational level ... race, geographical location, height, beauty, health status and personality" (Krueger, 2002). It appears then, that the influence of parents and their socioeconomic status is powerful. Parents' influence on their children's occupational preferences is transmitted via the communication between parent and child. This is supported by Young, Valach, & Patrick (1995) who have proposed that the communication between parent

and child can be either “unidirectional (where the accent is on helping in one direction only (or) bidirectional (where inputs are considered from both sides)” (p. 49).

Herr et al (1996) citing Fernandez (1988), have noted that “Southeast Asian students ... are not likely to make decisions without the advice and consent of their families” (p. 281). The importance of the family amongst Singaporeans, part of the South-East Asian people-groups, has been articulated in *Singapore 21: together we make the difference*, a document that reflected the work of the Singapore 21 committee. The committee, launched by Singapore’s Prime Minister Goh Chok Tong, was to gather feedback from all Singaporeans to gauge their aspirations for the twenty-first century. The committee noted that “strong families are the foundation for healthy lives and wholesome communities ... they are the avenue through which our old pass on the values and lessons they have learnt in life.” (Singapore 21, 1999, p.26). Although parental influence was not a factor featured in Gottfredson’s theory, this descriptive study would also explore how parents influence their children’s occupational preferences.

Summary

The research reviewed in this chapter has noted that discarding perceived unsuitable occupations (or circumscription) is a natural phenomenon. Pupils’ abilities to reject occupations begin when they are in primary school, and even before they have gathered sufficient occupational information to make informed choices.

According to Gottfredson, it is the external attributes of a person’s self-concept that influences his/her occupational selection. The two main external variables that influence young people’s occupational preferences are: occupational sex-type (i.e. a young person’s perception regarding the suitability of particular occupations for his/her sex) and prestige. The reviews in this chapter have also noticed that the development of young people’s gender and social class stereotypes initially focus on concrete characteristics and gradually move towards the abstract. This might imply that the more tangible factors making up sex-type and prestige would influence younger children’s

occupational preferences. For older children, the more abstract elements of sex-type and prestige would influence their occupational preferences. Some studies have also hinted that the influence of sex-type factors is likely to influence boys' occupational preference more than girls' occupational preferences.

Occupational prestige studies conducted in Singapore have shown that the "prestige" factor is a compound criteria consisting of "education, income, and status, as well as moral and religious values" (Chiew, Ko & Quah, 1991, p. 44). Besides these factors, the influence of parents on their children's occupational preferences was also explored.

Most of the research studies reviewed in this chapter focused on teenagers or young adults at university. Only a handful focused on primary school pupils. The research studies reviewed in this chapter and research conducted in Singapore have been mostly based on a quantitative approach which has tended to reduce complex human perceptions and reactions to simple, numerical digits. In order for a description to be drawn of Singapore primary school children's occupational awareness and preference, a qualitative approach has provided an added dimension in this research project. This research project also focused on primary school children as only a small handful of research studies cited had explored the career behaviour of primary school children.

CHAPTER THREE

Methodology

Chapter one indicated that the purpose of this study was to describe Singapore primary pupils' career development. This comprises pupils' general beliefs about gender and social class differences, their occupational understanding in terms of the number and types of occupations they were able to list, and pupils' supporting reasons for selecting and rejecting occupations from the pool of occupations listed by them. This descriptive study also compared the responses between lower and upper primary children, and between girls and boys.

Overview of Research Project

Figure 1

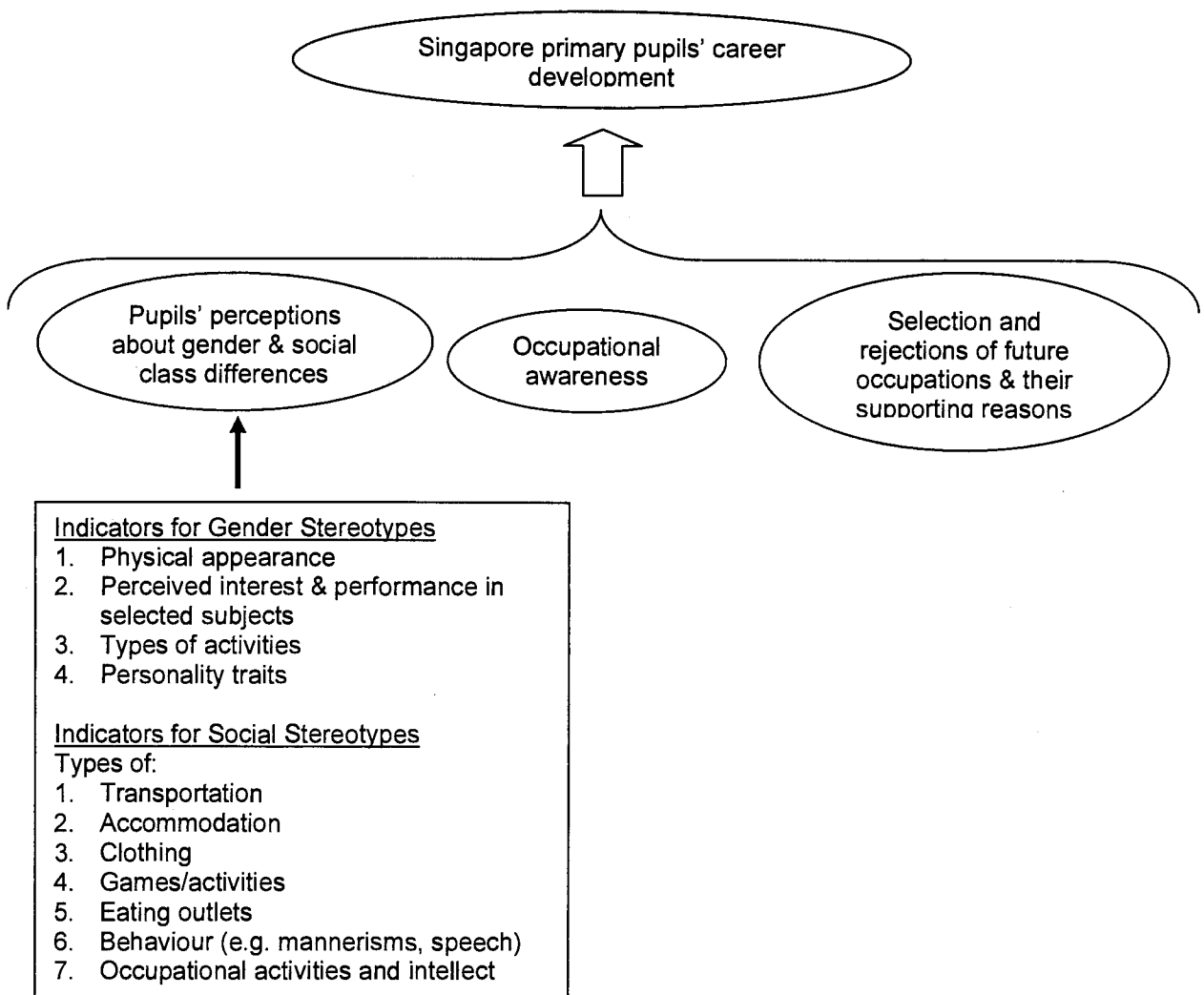


Figure 1 above provided a diagrammatic overview of the areas that this descriptive study on Singapore primary school children's career development had explored. The descriptive study covered three areas:

- a. Pupils' general beliefs regarding gender or male-female differences (i.e. gender stereotypes), and general beliefs relating to differences found in society (i.e. social class stereotypes).
- b. Pupils' occupational awareness in terms of the number and types of occupations that they were able to recognise and list, and
- c. Pupils' selection and rejection of future occupations and the supporting reasons for their choices.

American theorist Gottfredson (introduced in earlier chapters) had noted that the external elements of pupils' career self-concept or identity (i.e. the social self) had a greater influence on their occupational choices than the internal elements of their career identity (or the psychological self). Examples of pupils' social selves that Gottfredson had cited were "gender, social class, intelligence" and examples of internal elements were "values, personality" (1996, p.181).

Berk (1997) defined gender stereotypes as "widely held beliefs about characteristics deemed appropriate for males and females" (p. 502). Gottfredson (1981) noted that "sex role stereotypes appear to develop in the same way that occupational images do ... there is a developmental pattern that is associated with cognitive development" (p.559). Younger children generally were able to only understand concrete concepts like physical appearance, but as they advanced in years, they gradually progressed to understand more abstract and subtle concepts like perceived interest & performance in selected subjects, types of activities, personality traits, and occupational activities. The indicators that reflected pupils' beliefs about differences in gender characteristics were developed to coincide with cognitive development.

Gottfredson (1981) citing Kohlberg (1966) mentioned that "children learn to correctly label others by gender according to concrete and observable behaviours and appearances (particularly clothing and hairstyle) (p.559). However as children grew older, their cognitive development advanced to understand abstract concepts like sex roles (i.e. "the sets of behaviours

belonging to each sex” (Gottfredson, 1981, p.559). Several studies cited by Berk (1997) were reviewed in chapter two, and these – together with Gottfredson’s findings – provided the underlying guidelines to design the specific indicators that reflected gender stereotypes.

Similarly, social class stereotypes – described as those beliefs related to characteristics reflecting the diversity and inequality in society – also developed in line with pupils’ cognitive development. The indicators for social stereotypes covered (in increasing abstraction) type of transportation used, accommodation, clothing, games/activities favoured by people from different social strata, eating outlets, behaviour, and occupational activities and intellect. These were drawn from Gottfredson (1981) who had cited examples of “elements or symbols of social class (as) education, occupation, income, place of residence, clique membership” (p.561). Citing Goldstein & Oldham (1979) and Stendler (1949), Gottfredson had noted that “the readiness or ability to recognise and assimilate each of the cues seems to be determined in large measure by one’s level of cognitive development” (1981, p.561). Using cognitive development as a guide, the indicators describing social class differences began with more concrete symbols and gradually moved to more abstract cues.

Survey Questionnaire

Shaughnessy & Zechmeister (1994) have noted that the use of a survey is a “method designed to deal more directly with the nature of people’s thoughts, opinions, and feelings” (p.113). Since this was a study to explore pupils’ career development in terms of their perceptions and awareness, it was considered appropriate to use a survey to collect data on the areas described in figure 1. A survey questionnaire comprising four parts was developed (see Appendix 3-1). Parts A to C of the questionnaire coincided with the three areas diagrammed in figure 1 as follows:

Parts A and B – “pupils’ perceptions of differences in gender and social class” and “pupils’ sextype and prestige of selected occupations” and
Part C – “occupational awareness, and selection and rejection of occupations and their supporting reasons”.

Burns (1994) has observed that quantitative approaches tend to assume that “social reality is objective and external to the individual” (p.2). In contrast, qualitative approaches “emphasises the importance of subjective experience of individuals (where) ... social reality is regarded as a creation of individual consciousness, with meaning and the evaluation of events being a personal and subjective construction” (p.3). Citing Eisner (1979), Burns (1994) has indicated that “qualitative methods are concerned with ... organic wholeness rather than independent variables and with meanings rather than behavioural statistics” (p.12). A limitation, then of the quantitative approach, was the reduction of human perceptions to mere numbers and “quantification (becomes) an end in itself rather than a humane endeavour seeking to explore the human condition” (Burns, 1994, p.10). To overcome this limitation, elements of qualitative methods – such as the use of open-ended questions where pupils would have an opportunity to freely express themselves – were included in the survey questionnaire.

Pupils' Gender and Social Class Stereotypes

Part A of the survey questionnaire focused on pupils' perceptions and beliefs related to gender and social class differences. The purpose of this part of the survey questionnaire was to determine how traditional or liberal pupils' beliefs were regarding the appearance and behaviour of men and women, and about status and prestige. It was also to answer research question 1 – “what were the similarities and differences in perceptions of gender and social class differences held by lower and upper primary pupils?”

As mentioned above, Gottfredson's (1981, 1996) principle of circumscription – especially principle one - was used to guide the development of the indicators representing both gender and social class stereotypes. Principle one indicated that pupils' cognitive abilities progressed initially from the concrete to the abstract. This meant that beliefs regarding appropriate gender characteristics would start with “concrete, external, observable appearances and behaviour” (Gottfredson, 1981, p.556), and gradually increase in abstraction.

The overall element of gender stereotype was broken into four sub-elements: physical appearance (PA), gender-type activities (GA), perceived interest and competence in gender-related subjects (GS), and personality traits (PT). The related statements for each of the four sub-elements were:

1. Physical appearance (PA) – statements 1 to 8 reflected beliefs related to physical appearances normally associated with males and females, such as hairstyle and dressing.
2. Gender activities (GA) – statements 9 to 10, and 21 to 28 reflected beliefs related to appropriate gender activities such as cooking, housework, repairing broken things, pumping petrol into the car, and sports like soccer and basketball.
3. Gender-type subjects (GS) – statements 11 to 18 described male and female perceived interests and performance in selected subjects. For example, it is often assumed that females had a more natural flair for languages while males were better at mathematics and science.
4. Personality traits (PT) – statements 29 to 36, 55 to 56 described feminine and masculine personality traits.

The total number of statements for all the four sub-elements was 38. It was seen that the sub-elements comprising 'gender stereotype' began with more observable indicators such as physical appearance (PA) (e.g. dressing and hairstyles), moved to types of activities (e.g. housework), and culminated in more abstract concepts like preferred subjects, and personality traits. Examples of statements for the most concrete sub-element – PA – included "women can only wear dresses and skirts" and "men cannot keep long hair". Examples of statements for sub-elements that were a blend of concrete and abstract elements – GA and GS – were "women must learn how to cook", "men do not do housework", "men like subjects such as Mathematics and Science", and "women like subjects such as English and Mother Tongue". Examples of statements for the most abstract sub-element – PT – were "men are strong" and "women are weak".

For the overall element 'social class stereotype', only two sub-elements – social class 1 (SC1) and social class 2 (SC2) - were developed. Sub-element

SC1 had 12 statements while sub-element SC2 had 8 statements, giving a total of 20 statements. The specific statements for each of the subgroups were:

1. Social class 1 (SC1) – statements 19 to 20, and 37 to 46 described social valuation perceptions related to transportation, housing types, clothing, type of sporting activities, and eating outlets.
2. Social class 2 (SCS2) – statements 47 to 52, and 57 to 58 described social valuation perceptions regarding mannerisms, occupational activities, and intellectual abilities.

To cater to the different abilities of pupils in lower and upper primary levels, it was felt that the words “rich” and “poor” would be used to denote differences in social class as this was generally understood by all primary school children. Like gender stereotypes, the individual items in each of the two social class subgroups moved from the concrete to the abstract. Items found in SC1 (i.e. social class 1) described social cues that were more concrete or observable such as type of transportation used, accommodation, clothing, and eating outlets. Examples of statements that reflected these concrete or more observable social cues included “rich people can afford to own cars”, and “poor people cannot afford to own cars”. In the statements referring to transportation, the accepted pecking order (by costs) had “cars” at the top, followed by taxis, the mass rapid transit system (or MRT), and buses. Due to Singapore’s limited geographical size, the cost of owning and operating a car is very high compared to travelling in taxis, the MRT and/or buses. Similarly, majority of Singaporeans live in high-rise flats, and landed property or houses are again available only to a privileged minority.

Items found in SC2 (i.e. social class 2) described more abstract cues reflecting social class such as specific types of sports (e.g. golf), behaviour such as speech and manners, and occupations. Examples of statements that described more abstract or least observable social class cues included “rich people play golf”, “rich people are polite” and “poor people are rude”. A detailed listing of all the statements comprising gender and social class stereotypes can be found in Appendix 3-3.

In part A of the survey questionnaire, pupils had to read each statement, decide whether it was ‘true’ or ‘false’, and then shade the appropriate bubble.

Pupils’ Occupational Stereotypes

Part B of the survey questionnaire was an application of pupils’ gender and social stereotypes to eight selected occupations. The selected eight occupations were “cleaner”, “construction worker”, “doctor”, “fire-fighter”, “flight attendant”, “nurse”, “pilot”, and “teacher”.

Chapter two had defined occupation segregation and described the representation ratio, which was a measure for occupation segregation. The chapter had also discussed in detail, representation ratios for each occupational groupings found in the Singapore Standard Occupational Classification (SSOC, 2000). The following table was drawn up by matching each of the selected occupation with their occupational grouping as described in the SSOC 2000:

Table 3-1
Matching of Selected Occupations with SSOC Group and Description of Representation Ratio

<i>Occupation</i>	<i>SSOC² Occupation Group</i>	<i>Representation Ratio</i>
Cleaner	Cleaners, Labourers & Related Workers	1.44 - the proportion of women in this occupational group is 1.44 times more than the proportion of women in the workforce
Construction Worker	Cleaners, Labourers & Related Workers	1.44 - the proportion of women in this occupational group is 1.44 times more than the proportion of women in the workforce
Doctor	Professionals	0.75 – three-quarters of all working women are represented in this occupational grouping
Fire-fighter	Service Workers & Shop &	0.92 - the proportion of

² SSOC – Singapore Standard of Occupational Classification

Occupation	SSOC² Occupation Group	Representation Ratio
	Market Sales Workers	women in this occupational group is about the same as the total proportion of women in the workforce
Flight attendant	Service Workers & Shop & Market Sales Workers	0.92 - the proportion of women in this occupational group is about the same as the total proportion of women in the workforce
Nurse	Associate Professionals & Technicians	0.96 - the proportion of women working in this occupational group is about the same as the total proportion of women in the workforce
Pilot	Associate Professionals & Technicians	0.96 - the proportion of women working in this occupational group is about the same as the total proportion of women in the workforce
Teacher	Professionals	0.75 - three-quarters of all working women are represented in this occupational grouping

Table 3-1 indicated that there was an over-representation of women for occupations such as “cleaner” and “construction worker”, an under-representation of women for occupations such as “doctor” and “teacher”, and an

almost equal representation of women for “fire-fighter”, “flight attendant”, “nurse” and “pilot”.

In part B, pupils had to decide whether the work for each of the eight occupations could be done by “men only”, “women only” or by “both men and women”. Their responses would then be compared with table 3-1 above.

Gottfredson (1996) had noted that occupational prestige reflected an ability dimension (p. 184). In other words, the more prestigious an occupation was, the more likely that it required higher and more complex abilities to carry out the work of the occupation. Table 3-2 was an expansion of Table 3-1 to include skills levels for each occupational group.

Table 3-2
Relating Selected Occupation with SSOC Occupation Group, Skill Level, and Representation Ratio

<i>Occupation</i>	<i>SSOC Occupation Group</i>	<i>SSOC Skill Level³</i>	<i>Representation Ratio</i>
Cleaner	9	1	1.44
Construction Worker	9	1	1.44
Doctor	2	4	0.75
Fire-fighter	5	2	0.92
Flight attendant	5	2	0.92
Nurse	3	3	0.96
Pilot	3	3	0.96
Teacher	2	4	0.75

From the above table, it was seen that the eight occupations also represented a variety of prestige levels, as reflected by their skills levels. “Doctor” and “teacher” were generally considered as “most prestigious” while “cleaner” and “construction worker” were considered as “least prestigious”.

³ Comprise two dimensions – skill level and specialisation. Skill level is a function of the complexity and range of tasks and duties involved; skill specialisation is defined by the field of knowledge required, the tools and machinery used, the materials worked on or with, as well as the kinds of goods and services produced (SSOC, 2000, p.4)

Pupils' Occupational Awareness, Selection and Rejection

Part C had two aims: the first was to determine pupils' occupational knowledge in terms of generating a collective occupations' list, and the second was to determine which occupations (from this collective occupations' list) would pupils select their occupational preferences and reject their non-preferred occupations. This collective occupations' list would form a very crude proxy for the survey sample's "cognitive map of occupations". Pupils' selection of occupational choices from this cognitive map would then reflect their – what Gottfredson had termed - "zone of acceptable alternatives (ZOAA)".

For each of their occupational preferences and rejections, pupils had to provide supporting reasons. It was hoped that pupils' supporting reasons would reveal what factors influenced their occupational preferences and rejections. As speculated earlier, the influencing factors could either be pupils' internal or external attributes or other factors such parents' influence.

In order to meet the aims for part C, four tasks were devised for this portion of the survey questionnaire. In the first task, pupils were asked to study a table featuring 48 occupations and circle as many of them that they knew. The list of 48 occupations had been culled from a workshop of 50 primary school teachers with many years of teaching experience at both the lower and upper primary levels. It was felt that these 48 occupations would be generally familiar to primary school pupils. This list of 48 occupations was then reviewed against SSOC 2000 to ensure that a good representation of occupations from all skill levels was represented. As mentioned above, the skill levels found in the SSOC 2000 represented prestige-levels. Occupations from part B of the survey questionnaire were excluded from the table.

The second task that pupils had to do was to think and write down as many additional occupations that they knew. These occupations were those that did not appear for task one. These additional occupations were to be written down on a second blank table provided on the same page, and it was based on individual pupils' inherent knowledge of occupations. In order not to unduly penalize academically weaker pupils, pupils could write down occupations found in part B of the survey questionnaire. These part B occupations would not be included with the total quantity of additional

occupations that pupils had written down for task two so as to avoid double-counting. Pupils' "cognitive map of occupations" thus comprised occupations circled from the table of 48 occupations (i.e. task one), additional occupations written down (i.e. task two), and all occupations found in part B of the survey questionnaire.

Once pupils had completed this second task, their third task involved choosing any five occupations that they would do when they grew up. Pupils' occupational choices could be taken from any of the occupations that appeared on either table one or two on page 5 of the survey questionnaire. Pupils also had to provide reasons for their occupational choices. The reasons pupils' provided for their choices would be reviewed against Gottfredson's theory to determine whether gender and prestige were the two primary factors influencing the occupational preferences of Singaporean primary school children. Or would Singaporean primary pupils' also provide other reasons influencing their occupational choices?

The last and fourth task for part C was for pupils to write down those occupations that they would not choose to do (i.e. reject) when they grew up. Again, they had to give reasons for their choices. The supporting reasons pupils provided for their occupational rejections would form stronger evidence to either support or refute Gottfredson's theory.

Part D provided a profile of the pupils who had answered the questionnaire, in terms of their personal particulars and their family background. Besides completing the survey questionnaire, pupils also had to write a free-response composition titled "what occupation I would like to do when I grow up and why".

Content and face validity for the survey questionnaire was established by having experienced primary school teachers and guidance specialists from the Singapore Ministry of Education review the draft questionnaire and its administration, and provide recommendations. In addition, the draft questionnaire was also piloted amongst pupils who had similar profiles to the pupils in the target sample, and administered under similar conditions as the administration of the final survey. Details of the review and pilot would be described in the next section.

Since the survey questionnaire was only administered once, pupils' responses (especially for part A) would be used to determine the internal reliability or consistency for the questionnaire. Further details regarding the mathematical formula would be described in a later chapter.

Trial of the survey questionnaire

A draft of the survey (see appendix 3-1-3) was piloted with a group of 51 pupils attending a Before-and-After-School Care (BASC) facility. As the pupils attending the BASC were only girls, the draft survey was also tested with a Sunday school class taught by the researcher comprising a total of five boys, and two girls. The purposes for trialling the survey included:

1. gauging the total amount of time that primary school children needed to complete the eight-page questionnaire
2. observing pupils' ability to concentrate,
3. observing whether there were parts of the questionnaire which pupils found difficult to complete, and
4. noting whether any of the items in the questionnaire needed further modifications due to the abilities exhibited by younger and less able pupils.

Out of the total of 58 pupils who had been given the questionnaire, only 36 pupils were able to complete the survey. The trial of the questionnaire also found that lower primary pupils found it very tiring to complete the 8-page questionnaire in one sitting. Many of them took more than 30 minutes with those in primary 1 taking close to 60 minutes to complete the survey. It was also found that pupils who had cognitive difficulties were also unable to complete the survey.

In part A of the questionnaire, pupils had to shade "true" or "false" bubbles for statements reflecting pupils' beliefs about gender and social class differences. Many pupils also omitted shading the correct bubbles corresponding to their related statements. For example, pupils ended up shading statement 2's bubbles in response to statement 1. This was due to the lack of gridlines to guide the pupils when they read the statements (see below for an example).

	True	False
1 Women can only wear dresses and skirts	<input type="radio"/>	<input type="radio"/>
2 Men cannot wear dresses and skirts	<input type="radio"/>	<input type="radio"/>

Part B of the survey questionnaire had initially been an exercise where pupils had to read a closed passage and provide personal names for each of the eight occupations featured in the closed passage (see appendix 3-1-4). The analysis of personal names supplied by pupils would reflect whether pupils associated each occupation with men, women or both. This exercise had been extracted from a Lifeskills lesson used in secondary school. On further thought and reflection, the researcher felt that the exercise might be too difficult for pupils in a primary school, and it was decided to extract the occupations from the closed passage and use them in a list.

This draft survey was also distributed to four experienced primary school teachers and guidance officers from the Ministry of Education for their feedback. They recommended that pupils be closely guided in each of the tasks found in part C of the questionnaire. The list of 48 occupations used for the first task in part C, was finalised from an activity carried out at a workshop for 50 primary school teachers on career guidance. The activity had grouped teachers according to the levels they taught, and asking each group to make a list of occupations that pupils of the levels they taught would know. The final list of 48 occupations was sorted alphabetically and cleared of repetitions. The final list also consisted of occupations that were not gender specific. For example, if masculine and feminine versions of an occupation were listed (i.e. actor and actress), both were omitted from the list.

They felt that having pupils write down occupations they would not choose in future pre-supposed that pupils were familiar with a wide range of occupations. They recommended that pupils' knowledge of occupations be discovered first before proceeding to investigate which occupations pupils would not choose.

Modifications Made to Survey Questionnaire

Modifications made to the draft survey questionnaire found in appendix 3-1-3 to reach the final survey questionnaire found in appendix 3-1 included:

- a. Statements in part A were placed in a table with their grid lines drawn in so as to avoid the errors that pupils made while completing part A of the draft survey questionnaire. The distance between each statement and their corresponding 'true' or 'false' bubbles was also shortened.
- b. As mentioned in the previous page, the occupations found in the closed passage was converted to a list and pupils asked to decide whether the work of each occupation could be done by either "men only", "women only", or by "both men and women". This list was then repeated and pupils asked to rate the importance of each of the eight jobs by using a four-point rating scale. The rating would reflect pupils' view of how prestigious they thought each job was. A rating of '1' meant that they thought the job was "very unimportant" (or "not very important") while a rating of '4' meant that they thought the job was "very important". The word "important" was provided as a suitable alternative to "prestigious" to assist pupils who were either in lower primary or weaker in English. *Collins Cobuild English Language Dictionary* (1993) explained that "something that is prestigious is important..."(p.1135). A four-point scale was used to prevent pupils from taking a moderate approach when determining how important/prestigious they thought an occupation was.
- c. The tasks for part C of the draft questionnaire was amended to have pupils initially circle known occupations from a given list, and then write down additional occupations not found in the list. During the pilot of the survey questionnaire, it was also found that almost all of the pupils in the pilot group omitted instructions (c) set out in part C of the questionnaire, which required them to list additional occupations that they knew on a separate piece of paper. As a result of this non-completion, part C had been modified to provide space within the questionnaire for pupils to write additional occupations that they knew.
- d. Instead of having pupils complete the sentence "when I grow up, I will...." instructions were changed to "write a composition on 'what occupation I would like to do when I grow up and why". This free-response portion was also customised to suit the different abilities of the lower and upper primary pupils. Lower primary pupils only had half an A4-sized page to write their

composition (equivalent to 10 double-spaced lines), while upper primary pupils had the full A4-sized page (equivalent to 25 double-spaced lines) to write their composition. Copies of the templates can be found in Appendices 3-1-1 and 3-1-2.

- e. Since the final survey questionnaire had so many parts, and taking into consideration the different physical stamina between lower and upper primary pupils, it was decided that the survey would be administered differently for lower and upper primary pupils.

Research Participants

The pupils for this study were drawn from a government, mixed-sex primary school. Singapore primary schools can be classified either as government or government-aided schools. Government schools refer to schools established and funded wholly by the Singapore government. In contrast, government-aided schools refer to those established either by religious organisations, clan associations, or groups of wealthy philanthropists. Government-aided schools only receive partial funding from the government.

Besides "government" and "government-aided", schools can also be classified as to whether they were single-sex or mixed-sex schools. Single-sex schools refer to schools that have pupils of one particular sex, while mixed-sex schools refer to those that have pupils of both sexes studying together. Of the 180 government and government-aided primary schools, the majority of schools (135) in Singapore are government, mixed-sex schools.

The selected mixed-sex, government primary school has a pupil population of 1,318 pupils. The researcher had written to the Principal seeking permission to use her school to collect data for her research. The chosen school represented a typical neighbourhood school, which catered primarily for families that stayed within the neighbourhood and close to the school. The school selected for the research project was situated in a housing estate located in the western part of Singapore, where many of the residents live in HDB flats. Data on housing type gathered from the school population and survey sample would help to confirm this assertion. Pupils attending the school

would also reflect the ethnic distribution of Singapore with the majority of pupils being Chinese, followed by Malays, and Indians respectively.

Once permission from the Principal was granted, a meeting was convened between the Vice-Principal and a teacher assigned to liaise between the school and the researcher. The meeting discussed the research project aims, method in which data would be collected, and the profile of pupils that the researcher was interested to include in her sample. The three essential characteristics of the sample were:

1. pupils from both lower and upper primary levels
2. representation of pupils from the three major ethnic groups in Singapore (i.e. Chinese, Malay, and Indian)
3. pupils from a wide-range of socio-economic backgrounds as represented by their parents' educational levels, and housing type

The meeting agreed that invitation letters (a sample of which is at Appendix 3-2) would be randomly distributed through the form teachers to their pupils. Pupils were requested to pass the letters to their parents and return the response slips by the deadline set by the school. Although parents of 128 pupils gave their consent for their children to participate in the survey questionnaire, only 123 pupils completed the survey. Five of the pupils were absent on the days that the administration of the survey took place. It was decided that these absent pupils need not complete the survey as it had taken place during the last week of the school term.

Survey Administration

The school informed the researcher that the survey could be administered during the last week of the second term of school. During this period, regular lessons were suspended as teachers were finalising marks for pupils' semestral examinations and completing administrative tasks before the pupils' report books were distributed. The last week was also just before the four-week semestral holiday break.

Almost all primary schools in Singapore function on two sessions: morning and afternoon. The morning session starts at 7:30 a.m. and ends by 12:55 p.m. while the afternoon session begins at 1:00 p.m. and ends at 6:30

p.m. As the research sample involved pupils from different levels, and the different levels functioned during the different sessions, a schedule for the administration of the survey had to be drawn up, and conveyed to the teacher-liaison from the school. The schedule included pupil groupings, dates, timings, and the relevant parts of the survey that would be administered. For levels where the total number of pupils eligible to take the survey was greater than 20, they were split into groups of not more than 12-13 pupils each. Only one group of pupils from primary three, whose classes were in the afternoon session, was requested once to be in school earlier for the survey. A summary of the survey schedule has been provided in Appendix 3-4.

As a result of testing the draft survey amongst a group of primary pupils (as described in earlier sections), the researcher decided that the survey questionnaire would be administered to lower primary pupils in three sittings. For the first sitting, lower primary pupils completed parts A and B of the survey. Parts C and D were completed during the second sitting, and the half-page composition (or free-response portion) were completed during the third sitting.

Upper primary pupils took two sittings to complete the survey: the first sitting was to complete the survey questionnaire comprising parts A to D, and the second sitting was to write the one-page composition on "What occupation I would like to choose when I grow up and why".

For the free-response composition section of the survey, pupils were instructed to write freely and not worry about spelling mistakes. The only proviso was the researcher instructed pupils to spell words in such a way that the researcher could guess what they were writing about. There was also constant reiteration that the survey was not a test and there were no right or wrong answers. The researcher hoped that pupils' uninhibited responses would allow the researcher to enter their world and understand their thoughts related to their preferences for occupations.

Data Analysis: Quantitative and Qualitative Approaches

Since this research project incorporated both quantitative and qualitative approaches by using a survey questionnaire consisting of both closed- and

open-ended questions, data analysis, then would involve both quantitative and qualitative methods.

The research questions listed in chapter one were meant to compare similarities and differences between lower and upper primary groups of pupils as well as between boys and girls. Quantitative methods used descriptive statistics such as frequency bar charts and line graphs to compare similarities and contrast differences in the responses by lower and upper primary pupils.

Pupils' responses for parts A and B of the survey questionnaire would answer research question 1 – “what are the similarities and differences in perceptions of gender and social class differences held by lower and upper primary pupils?”

In part A of the questionnaire, pupils had to choose either “true” or “false” for 58 statements. The Statistical Package for the Social Sciences (SPSS) was used to calculate the means, standard deviations and variances for pupils' responses for each of the sub-elements comprising the elements “gender stereotype” and “social class stereotype”. The sub-elements for “gender stereotype” were physical appearance (PA), gender activities (GA), gender-type subjects (GS), and personality traits (PT), and the sub-elements for “social class stereotype” were social class 1 (SC1) and social class 2 (SC2). To determine whether the responses between lower and upper primary pupils, and between male and female pupils would be significantly different, multi-variate analysis of variance (MANOVA) would be calculated using SPSS. MANOVA was chosen as each element (i.e. PA, GA, GS, PT, SC1, and SC2) for gender and social class stereotypes were composed of more than one sub-element each.

As mentioned earlier, the internal consistency or reliability of part A of the survey questionnaire could be calculated by using pupils' responses during the single administration of the questionnaire. Advice regarding the calculation of this overall reliability figure was sought from statisticians working in the Ministry of Education's Psychological Assessment and Research Branch (PARB). Cronbach Coefficient Alpha was recommended as a suitable mathematical estimate for reliability, and this could be calculated using specialised software that was licensed to PARB. The statistician also indicated that Cronbach's Coefficient Alpha of 0.80 or higher meant that the questionnaire was reliable.

The statistician consulted by the researcher kindly agreed to run the software using the responses provided by pupils from the survey sample.

In part B of the survey questionnaire, pupils had to choose from two types of responses: the first type of response was one choice out of three possibilities - “men only”, or “women only” or “by both men and women”. The second type of response was where pupils had to choose one option out of four regarding how important they thought each of the eight occupations was. The four options, to represent prestige, were “very unimportant”, “unimportant”, “important” or “very important”. Pupils’ responses by different educational levels (i.e. primary one to six) for each occupation in part B would be collated and represented as a line graph to determine the pattern of responses between lower and upper primary pupils.

Pupils’ responses for the first two tasks of part C of the survey questionnaire would answer research question 2 – “what are the similarities and differences that younger and older pupils have in their occupational knowledge?” Pupils responses would also be analysed both quantitatively and qualitatively. Details on qualitative analysis would be provided later in this chapter.

Pupils’ responses for tasks one and two of part C would be quantitatively analysed on two levels:

- (a) the total number of occupations that pupils were able to circle from a given list of 48 occupations; and
- (b) the total number of additional occupations that pupils were able to write down without any assistance.

Pupils’ responses would be collated in terms of the total number and type of occupations listed. The total number of occupations (both from the given 48 occupations’ list plus those occupations that pupils had written down without any assistance) plus the eight occupations found in part B would provide a very crude proxy for this survey sample’s cognitive map of occupations.

Pupils’ responses for tasks three and four of part C would answer research questions 3 and 4 as listed in chapter one. The total number and type of pupils’ occupational selections would thus be another rough proxy for pupils’ “zone of acceptable analysis” (ZOAA). Besides occupational selections, pupils

would also have to reject occupations from the crude “cognitive map of occupations”.

Since part D of the survey questionnaire gathered demographic information about pupils, descriptive statistics was used to present a profile of the sample of pupils who participated in this descriptive study.

Analysis of Text

Cresswell (2003) had indicated that data collected in qualitative research would “involve text (or word) data and images (or picture) data” (p.181). Silverman (2001) has defined text as “data consisting of words and/or images which have become recorded without the intervention of a researcher”. He has also noted that the written word reflects the “linguistic character of ... qualitative data” (p.119). The inclusion of the open-ended questions and essay as part of the overall survey questionnaire has provided an opportunity for textual data to be analysed. Silverman (2001) has noted four different methods researchers can use to analyse texts: content analysis, analysis of narrative structures, ethnography, and ethno methodology (p. 122-123). One basic method to analyse written text would be “content analysis”. This has been defined as “establishing categories and then counting the number of instances when those categories are used in a particular item of text” (Silverman, 2001, p.122). Silverman has also noted that content analysis however, can over-emphasise categories and “deflect attention away from uncategorized activities” (p.123). He did concede however that the use of simple word counts – used often in the content analysis method - could be combined with a qualitative analysis of the words used within the text.

Pupils’ supporting reasons for their occupational selections and rejections would answer research question 5 – “will Gottfredson’s gender and social class elements be the only factors that would influence pupils’ occupational selection and rejection? Or would Singaporean pupils have other important factors that would influence their occupational selection and rejection?” In addition, pupils’ responses for the free-response composition would be used to supplement their responses for part C.

Since pupils’ supporting reasons would be provided in text form, it was analysed quantitatively and carried out through highlighting recurring key words

used by pupils from the same level, and classified along key categories or themes. These classifications should provide clues as to factors that would influence pupils in selecting their occupational preferences.

Summary

This descriptive study on Singapore primary pupils' career development used a survey questionnaire comprising both closed and open-ended questions to collect data from both lower and upper primary pupils in a mixed-sex, government school. A pilot of the draft survey questionnaire was carried out amongst of a small group of primary pupils representing the survey sample. The purpose of the pilot was to discover the amendments and modifications that needed to be done on the draft survey so that the final version was suitable for all levels of primary pupils.

Data analysis involved both quantitative and qualitative approaches to address each of the research questions delineated in chapter one.

CHAPTER FOUR

Findings

Profile of Survey Participants

A total of 123 pupils’ parents provided consent for their children to participate in the survey. This was just under 10% of the total population of the school which had 1,318 pupils. Of these, 48 (or 39%) were lower primary pupils while the remaining 75 (or 61%) were upper primary pupils.

Gender and Age

Figure 4-1

Distribution of Male and Female Pupils in Lower and Upper Primary Levels

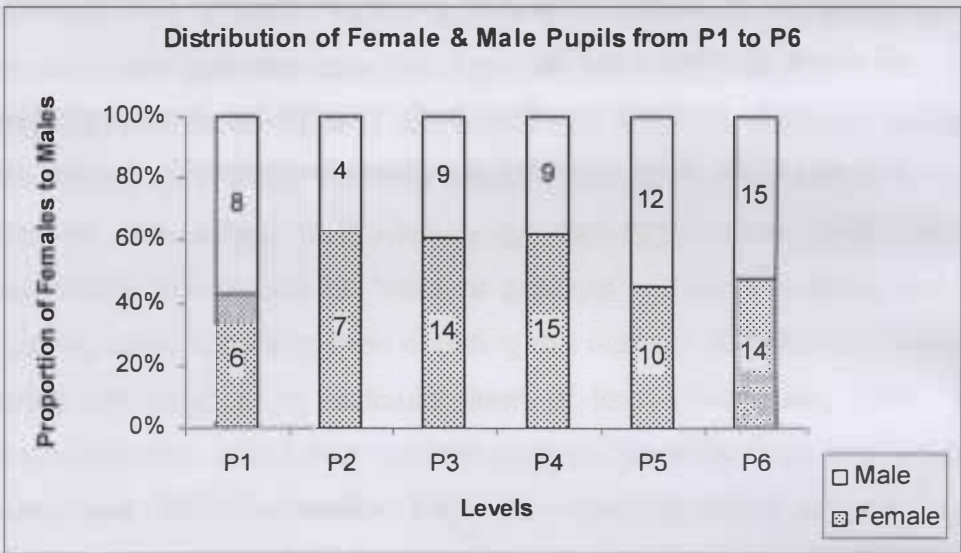


Figure 4-1 above shows the distribution of male and female pupils in the research sample for each level. The total number of pupils in each level from primary one to six (i.e. P1 to P6) is 14, 11, 23, 24, 22, and 29 respectively. The composition of female to male pupils for the lower primary levels was 27 (56%) to 21 (44%), while the composition of female to male pupils in the upper primary levels was 39 (52%) to 36 (48%) respectively. The total number of female and male pupils for the survey sample is 66 and 57 respectively.

The pupils’ average age as at 1 January 2003 for each primary level of the research sample was as follows: primary one – 6.6 years old, primary two – 7.6 years old, primary three – 8.5 years old, primary four – 9.4 years old, primary five – 10.6 years old, and primary six – 11.6 years old. These average ages are representative of pupils for each primary level. Only the foreign pupils

were older than the Singaporean pupils but their ages were still within the two-year age-range acceptable for each level.

Ethnicity

Table 4-1 below showed the ethnic distribution of pupils who took part in the survey questionnaire vis-a-vis those found in the school population. Although Chinese pupils formed the majority race in the research sample (46%), the minority races (i.e. Malay and Indians) had a much higher representation in the research sample (i.e. 25% and 26% respectively) than represented in the school population (17% and 9% respectively). The ethnic distribution of Singaporeans was Chinese (77%), Malays (14%), Indians (8%), and Others (2%) (www.sg, p.1, 15/5/2005). It can be seen that besides the survey sample, the ethnic distribution of the school population was also not representative of the ethnic distribution of Singapore: the school had a slightly higher percentage of Malays and Indians than the percentage of Malays and Indians found in the Singapore population. Pupils in the “others” category referred primarily to foreign pupils (i.e. those not born in Singapore). The research sample included pupils who were from Myanmar and the Philippines.

Table 4-1
Ethnic Distribution of Sample *vis-à-vis* School Population

<i>Ethnic Groups</i>	<i>Survey Participants</i>	<i>Survey Participants (%)</i>	<i>School Population</i>	<i>School Participants (%)</i>
Chinese	56	46	951	72
Malay	31	25	221	17
Indian	32	26	124	9
Others	4	3	22	2
Total	123	100	1,318	100

Parents' Educational Levels

In chapter two, a study on occupational prestige in Singapore had found that criterion respondents used to determine whether an occupation was prestigious or not was educational levels. This equation of educational levels

with ability levels (i.e. the higher one’s educational level was, the greater would be one’s abilities) also dovetailed with Gottfredson’s theory that mooted that occupational prestige reflected how complex the work was and by implication, the level of ability required to complete it. A 1991 study quoted in chapter two also implied that the educational levels of parents might have an influence on pupils’ vocational decisions. In light of this, it might be possible that parents’ who have completed secondary school might wish their pupils to consider pursuing higher educational qualifications, and to consider occupations that require tertiary qualifications to do the work.

It can be seen from table 4-2 below, that the highest educational level that most parents in the school population had was secondary education: 46% of fathers and 50% of mothers. The data on parents’ educational levels for the school population was obtained directly from the parents themselves when they registered their children for school, and updated periodically as required by the Ministry of Education department responsible for the pupils’ databank.

Table 4-2
Distribution of Fathers’ and Mothers’ Highest Educational Levels

<i>Parents’ Highest Educational Levels</i>	<i>School Population</i>	<i>School Population (%)</i>
<i>Fathers Highest Educational Levels</i>		
Not available	21	1.59
No schooling	2	0.15
P6 & below	219	16.67
Secondary	606	45.98
Pre-university & diploma	224	17.00
University	246	18.66
Total	1,318	100.00

<i>Parents' Highest Educational Levels</i>	<i>School Population</i>	<i>School Population (%)</i>
<i>Mothers Highest Educational Levels</i>		
Not available	6	0.46
No schooling	13	0.99
P6 & below	268	20.33
Secondary	663	50.30
Pre-university & diploma	209	15.86
University	159	12.06
<i>Total</i>	1,318	100.00

In contrast, when pupils in the survey sample were asked what their parents' highest educational levels were, 75% and 71% of them selected the option "I don't know" for their fathers' and mothers' highest educational levels respectively. It appears, therefore, that pupils were not cognizant of their parents' highest educational levels. It was also not possible to obtain the educational levels of parents of the pupils who had participated in the survey as no written permission had been granted by the parents themselves regarding the release of this information to the researcher.

Housing Types

As mentioned in chapter three, the school selected for this research project was deemed to be reflective of a typical neighbourhood school. A characteristic was that pupils attending the school stayed in typical housing within the neighbourhood. From table 4-3 below, it can be seen that the majority of the school population (90.8%) lived in flats whether they were HDB two-, three-, four- and five-room flats, or government executive apartments. The profile of housing types for survey respondents reflected a similar picture with 75.7% living in HDB two-, three-, four- and five-room flats, or government executive apartments. The only exception for the survey sample was that a sizeable 20% of survey respondents lived in private apartments. Pupils in the survey sample had provided the information regarding the type of housing they

lived in. The summary information for housing type was obtained from the same database that yielded parents’ educational levels.

Table 4-3

Comparison of Housing Types between Survey Participants and School Population

<i>Housing Type</i>	<i>Survey Participants</i>		<i>School Population</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
HDB ¹ 2-Room flat	5	4.1	6	0.5
HDB 3-Room flat	31	25.2	191	14.5
HDB 4-Room flat	37	30.1	379	28.8
HDB 5-Room flat	19	15.5	373	28.3
Government Executive Apartment ¹	1	0.8	246	18.7
Private Apartments	25	20.3	103	7.8
Terrace House	1	0.8	5	0.4
Semi-detached House	1	0.8	1	0.1
Others ²	3	2.4	14	1.1
Total	123	100.0	1,318	100.0

Notes

¹ HDB refers to the Housing and Development Board, the government department responsible for public housing in Singapore

² “Government Executive Flat & HUDC Flat” equivalent to “HDB Executive Apartments”

³ “Shophouse (HDB), Shophouse (Others), & others” equivalent to “HDB 1-Room flat, Bungalow and Others”

Languages Spoken at Home

Table 4-4

Language Spoken at Home

Home Language	Total	Percentages (%)
English	50	40.65
Mandarin	28	22.76
Malay	24	19.51
Tamil	13	10.57
Others (e.g Chinese/Indian dialects; languages)	8	6.50
	123	100.00

From the above table, it can be seen that most of the pupils in the survey sample spoke English at home. The spread of other languages spoken at home were also fairly evenly distributed.

In summary, the pupils who made up the survey sample were representative of the total population of all pupils attending primary schools in Singapore.

Part A: True-False Statements

Part A of the survey questionnaire had a list of 58 statements describing pupils' general beliefs about the characteristics of males and females as well as status and prestige. There were a total of 38 statements related to gender stereotypes that pupils had to determine whether they were 'true' or 'false'. The remaining 20 statements were related to social class stereotypes. Pupils had to determine whether each statement was 'true' or 'false'.

The element "gender stereotype" was broken into four sub-groups comprising physical appearance (PA), gender-type activities (GA), gender-type subjects (GS), and personality traits (PT). The element "social class stereotype" was broken into two sub-groups called "social class 1 (SC1)" and "social class 2 (SC2)".

The corresponding statements listed in part A of the survey questionnaire and related to each of the sub-groups for each of the elements were as follows:

Gender Stereotype

5. Physical appearance (PA) – statements 1 to 8 reflected beliefs related to physical appearances normally associated with males and females, such as hairstyle and dressing.
6. Gender activities (GA) – statements 9 to 10, and 21 to 28 reflected beliefs related to appropriate gender activities such as cooking, housework, repairing broken things, pumping petrol into the car, and sports like soccer and basketball.
7. Gender-type subjects (GS) – statements 11 to 18 described male and female perceived interests and performance in selected subjects. For example, it is often assumed that females had a more natural flair for languages while males were better at mathematics and science.
8. Personality traits (PT) – statements 29 to 36, 55 to 56 described feminine and masculine personality traits.

Social Class Stereotype

3. Social class 1 (SC1) – statements 19 to 20, and 37 to 46 described social valuation perceptions related to transportation, housing types, clothing, type of sporting activities, and eating outlets.
4. Social class 2 (SCS2) – statements 47 to 52, and 57 to 58 described social valuation perceptions regarding mannerisms, occupational activities, and intellectual abilities.

A detailed description for each of the 58 statements found in part A of the survey questionnaire and their clustering for each of the above groups can be found in appendix 3-3.

The sequencing of subgroups for the above gender and social class elements was to reflect the development of pupils' gender and social stereotypes starting from concrete observations (i.e. physical appearances, transportation, activities) and progressing to more abstract concepts like subject preferences, personality traits, and mannerisms. This was to be in tandem with the observations by developmental psychologists who had noted that children's gender development, just like their cognitive development, moved gradually from the concrete to the abstract.

Although a total of 123 pupils had completed the survey questionnaire, one lower primary female pupil had completely omitted to provide a response for statements 47 to 52. As a result, this pupil's responses for part A had to be dropped from the analysis. Four other pupils (two lower primary pupils and two upper primary pupils) had omitted responses for only one statement each. A guess – based on the calculated mean of their responses to the other related statements comprising the group - was made regarding their most likely response. For example if the calculated mean was less than 0.8, it was taken that the pupil had meant to place “1” or “true” for that omitted statement. Hence the analysis for pupils' responses to part A was based on 47 lower primary pupils instead of 48, and 75 upper primary pupils. This provided a total of 122 pupils.

Besides adjustments for minor omissions, it was also decided that all 122 pupils' responses to the statement “Men do not cry” would be omitted from the final analysis. It was felt that this statement was skewed towards eliciting the response “false” as the statement did not accurately reflect the masculine characteristic of crying due to the oversight of the word “easily”. It was surmised that should “easily” have been included, the responses of pupils might have been different. Since all the statements in part A comprised both masculine and feminine versions of gender indicators, pupils' responses to the statement “women cry easily” were also omitted from the final analysis. Pupils' responses then would be collated for a total of 36 statements instead of the original 38 statements for the construct “gender stereotype”. The total number of statements for the element “social stereotype” remained unchanged at 20.

As mentioned above, only the responses of 122 pupils were used to analyse the results of the survey questionnaire in part A. Table 4-5 below showed the distribution of pupils according to educational levels (i.e. lower and upper primary) and gender (i.e. boys and girls).

Table 4-5
 Distribution of Pupils by Educational Levels and Gender

<i>Educational Level</i>		<i>Gender</i>	
Lower Primary	47	Females	65
Upper Primary	75	Males	57
Total	122		122

In order to calculate the means for each of the subgroups comprising gender and social class stereotypes, each response that was “true” was coded “1”, and each response that was “false” was coded “0”. Table 4-6 showed the range of means for each subgroup comprising gender and social stereotypes.

Table 4-6
 Range of Means for Each Subgroup for Gender and Social Class Stereotype

	Subgroups	Range of Means
Gender Stereotype	PA	0 - 8
	GA	0 - 10
	GS	0 - 8
	PT	0 - 10
Social Class Stereotype	SC1	0 - 12
	SC2	0 - 8

Since there were eight statements comprising PA, the total score for each pupil for this subgroup could range from 0 to 8. Individual pupil’s totals can be combined for the sample in order to produce a mean for PA. Similarly, since there were ten statements comprising subgroup GA, the total score for each pupil for this subgroup could range from 0 to 10. Again, individual pupil’s totals can be combined for the sample in order to produce a mean for GA. These steps would be repeated for each of the subgroups making up gender and social stereotypes.

Since comparisons of mean totals for each subgroup for gender and social class stereotype would be done by educational levels (i.e. lower and upper primary pupils) and gender (i.e. female and male pupils), a lower mean total for each subgroup for gender and social class stereotype meant that more

pupils were inclined towards treating statements in each subgroup as “false”. In contrast, a higher mean for each subgroup for gender and social class stereotype meant that more pupils were inclined towards treating each statements in each subgroup as “true”.

Table 4-7 below compared the means and standard deviations by educational level and gender for all subgroups making up “gender” and “social class” stereotypes.

Table 4-7
Comparison of Means and Standard Deviations between Educational Levels and Gender for Gender and Social Class Stereotypes

Gender & Social Class Subgroups	Educational Levels & Gender	Mean	Std. Deviation
PA	1	4.28	1.72
	2	2.80	1.72
	F	3.26	1.88
	M	3.49	1.83
GA	1	5.89	2.29
	2	4.75	1.96
	F	4.87	2.30
	M	5.54	1.93
GS	1	2.32	2.09
	2	1.71	1.87
	F	1.55	1.97
	M	2.39	1.90
PT	1	4.33	1.95
	2	4.32	1.72
	F	3.68	2.08
	M	4.38	1.74

Gender & Social Class Subgroups	Educational Levels & Gender	Mean	Std. Deviation
SC1	1	7.49	3.06
	2	6.05	3.49
	F	6.34	3.78
	M	6.91	2.87
SC2	1	3.36	2.06
	2	1.96	1.79
	F	2.28	2.04
	M	2.75	1.96

Notes PA – physical appearance, GA – gender activities, GS – gender-type subjects, PT – personality traits, SC1 – social class stereotype 1, SC2 – social class stereotype 2, LP – lower primary (denoted by 1), UP – upper primary (denoted by 2)

The respective means between lower and upper primary pupils for each of the subgroups for gender and social class stereotypes were as follows:

- PA – 4.28 and 2.80 respectively,
- GA – 5.89 and 4.75 respectively
- GS – 2.32 and 1.71 respectively
- PT – 4.33 and 3.81 respectively
- SC1 – 7.49 and 6.05 respectively
- SC2 – 3.36 and 1.96 respectively

The respective means between female and male primary pupils for each of the subgroups for gender and social class stereotypes were as follows:

- PA – 3.26 and 3.49 respectively
- GA – 4.87 and 5.54 respectively
- GS – 1.55 and 2.39 respectively
- PT – 3.68 and 4.38 respectively
- SC1 – 6.34 and 6.91 respectively
- SC2 – 2.28 and 2.75 respectively

Figure 4-2 below plotted the means for each subgroup comprising “gender” and “social class” stereotypes for lower and upper primary pupils. The chart showed that the means for lower primary or younger pupils were higher than those for upper primary or older pupils. This meant that younger pupils tended to treat the statements for each of the subgroups as “true”.

Figure 4-2
Comparison of Means between Lower and Upper Primary Pupils for Subgroups of Gender and Social Class Stereotypes

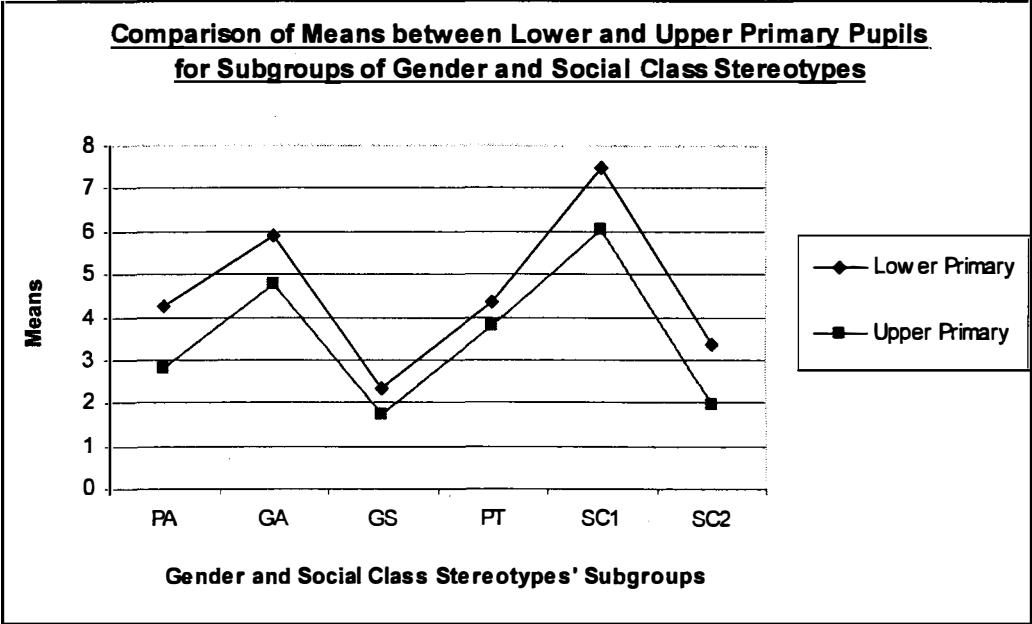


Figure 4-3
Comparison of Means between Female and Male Pupils for Subgroups of Gender and Social Class Stereotypes

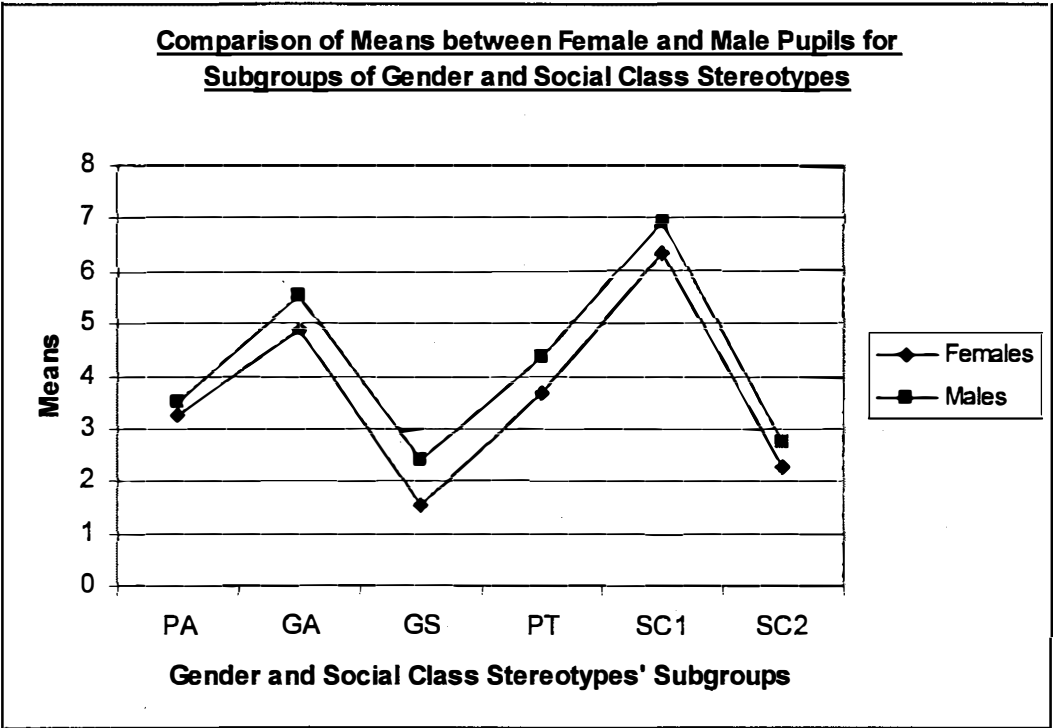


Figure 4-3 above plotted the means for each subgroup comprising “gender” and “social class” stereotypes for female and male primary pupils. The chart indicated that the means for female pupils, irrespective of age, were lower than the means for male pupils. This meant that female pupils tended to treat the statements for gender and social class stereotypes as “false”. Although the above graphs illustrated that the means for lower primary pupils’ responses were higher than the means for upper primary pupils’ responses, and male pupils’ responses were higher than female pupils’ responses respectively, it was important to determine whether these differences in means were significant or not.

It was mentioned in chapter 3 that the Statistical Package for the Social Sciences (SPSS) was used to determine whether there would be significant differences between the means of the responses between lower and upper primary pupils, and between female and male pupils.

Table 4-8
 Test for Significance in Mean Differences for Gender and Social Class
 Stereotypes between Lower and Upper Primary Pupils

Subgroups		Sum of Squares	df	Mean Square	F	Sig.
GA	Between Groups	37.45	1	37.45	8.57	0.00
GS	Between Groups	10.84	1	10.84	2.83	0.10
PA	Between Groups	63.34	1	63.34	21.50	9.09x10 ⁻⁰⁶
PT	Between Groups	7.82	1	7.82	2.07	0.15
SC1	Between Groups	59.58	1	59.58	5.38	0.02
SC2	Between Groups	56.77	1	56.77	15.78	0.00

Table 4-8 above showed the significant levels for the differences in means between lower and upper primary for each subgroup comprising gender and social class stereotypes. The table indicated that the difference in means between younger and older pupils were significant – at the conventional significant level of 5% - only for the subgroups GA, PA, SC1, and SC2. The significant figures for subgroups GA, PA, SC1 and SC2 were all well below 5% when reduced to two decimal places. As these figures were way below the significant level of 5%, this meant that the difference in means between lower and upper primary pupils for these subgroups were very significant. This meant that upper primary or older pupils chose significantly more false statements than lower primary or younger pupils for subgroups PA, GA, SC1 and SC2.

Table 4-9
 Test for Significance in Mean Differences for Gender and Social Class
 Stereotypes between Female and Male Pupils

Subgroups		Sum of Squares	df	Mean Square	F	Sig.
GA	Between Groups	13.49	1	13.49	2.95	0.09
GS	Between Groups	21.03	1	21.03	5.61	0.02
PA	Between Groups	1.67	1	1.67	0.48	0.49
PT	Between Groups	15.04	1	15.04	4.05	0.05
SC1	Between Groups	10.00	1	10.00	0.87	0.35
SC2	Between Groups	6.92	1	6.92	1.73	0.19

Table 4-9 above showed the significant levels for the differences in means between female and male pupils for each subgroup comprising gender and social class stereotypes. The table indicated that the difference in means between females and males were significant – at the conventional significant level of 5% - only for subgroups GS and PT. The significant figures for subgroups GS and PT were 0.02 and 0.05 respectively. As the figure for GS was far below the significant level of 5%, while the figure for PT was only marginally below the significant level of 5%, the difference in means between females and males was much stronger for GS than for PT. This meant that female pupils chose significantly more false statements than male pupils for subgroups GS and PT only.

Table 4-9a

Design - Intercept+UPLP+GENDER+UPLP * GENDER Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's	.89	152.38	6.00	113.00	.00
	Trace					
	Wilks'	.11	152.38	6.00	113.00	.00
	Lambda					
	Hotelling's	8.09	152.38	6.00	113.00	.00
	Trace					
UPLP	Roy's	8.09	152.38	6.00	113.00	.00
	Largest					
	Root					
	Pillai's	.22	5.38	6.00	113.00	.00
	Trace					
	Wilks'	.78	5.38	6.00	113.00	.00
GENDER	Lambda					
	Hotelling's	.29	5.38	6.00	113.00	.00
	Trace					
	Roy's	.29	5.38	6.00	113.00	.00
	Largest					
	Root					
UPLP *	Pillai's	.06	1.27	6.00	113.00	.28
	Trace					
	Wilks'	.94	1.27	6.00	113.00	.28
	Lambda					
	Hotelling's	.07	1.27	6.00	113.00	.28
	Trace					
UPLP * GENDER	Roy's	.07	1.27	6.00	113.00	.28
	Largest					
	Root					
	Pillai's	.03	.52	6.00	113.00	.79
	Trace					
	Wilks'					

Effect		Value	F	Hypothesis df	Error df	Sig.
GENDER	Trace					
	Wilks'	.97	.52	6.00	113.00	.79
	Lambda					
	Hotelling's	.03	.52	6.00	113.00	.79
	Trace					
	Roy's	.03	.52	6.00	113.00	.79
	Largest Root					

Table 4-9a above showed the result of a SPSS test (known as an interaction test) designed to determine whether the educational levels of pupils had any influence on their gender or vice versa. Since the significant figure of 0.79 for UPLP*GENDER was much higher than the conventional 5% level of significance (or $\mu \leq 0.05$), this highlighted that there was no significant interaction effects between the educational levels and gender of pupils in the sample. This meant that there was no significant difference between male and female pupils within each educational level in regard to their perception of gender and social class stereotypes.

The shaded portions of the above table also further confirmed that there was a significant relationship between the “gender and social class stereotypes” and the educational levels of pupils at the 5% level of significance (or $\mu \leq 0.05$). The relationship was significant as the resultant level of significance for educational levels was less than 5%. There was, however, no significant relationship between “gender and social class stereotypes” and gender of pupils in the survey sample. This meant that it was more the educational level of pupils rather than their gender which had an influence on their choosing significantly more “false” statements than “true” statements.

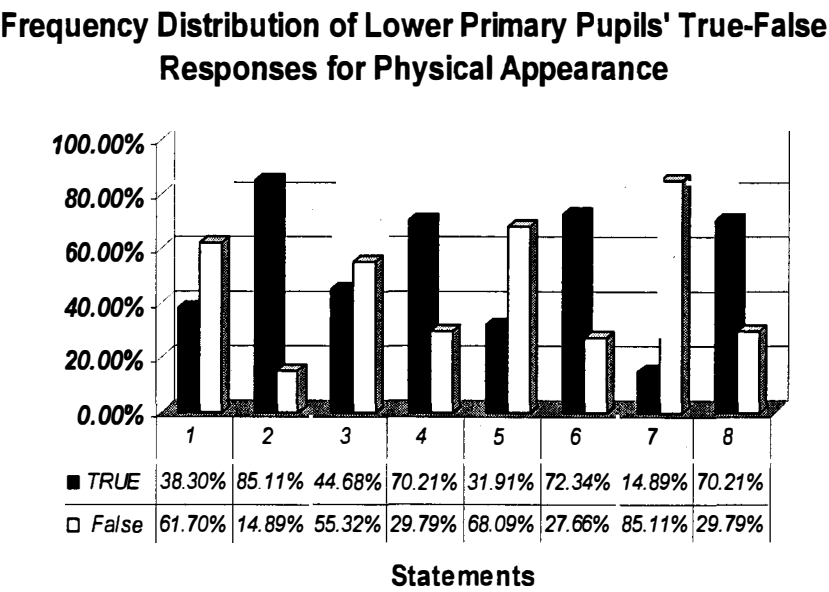
As mentioned in chapter three, Cronbach’s Coefficient Alpha was recommended as a mathematical figure to denote overall reliability of a questionnaire. The statistical experts also indicated that Cronbach’s alpha of 0.8 or higher meant that reliability was acceptable. When the sample’s

responses were used to calculate Cronbach’s alpha, the coefficient was found to be 0.91. As this was higher than the generally accepted level of 0.8, this meant that items comprising part A of the survey questionnaire was internally consistent.

The following figures 4-4 to 4-11 showed the frequency distributions of lower and upper primary pupils’ “true” and “false” responses for each of the subgroups (i.e. PA, GA, SC1 and SC2) where the differences in mean between younger and older pupils were significant. It was felt that chi-square analysis was not necessary given that similarities and differences in pupils’ “true” or “false” responses could be compared and contrasted using descriptive statistics like frequency bar charts and line graphs.

Figure 4-4

Frequency Distribution of Lower Primary Pupils’ True-False Responses for Physical Appearance (PA)

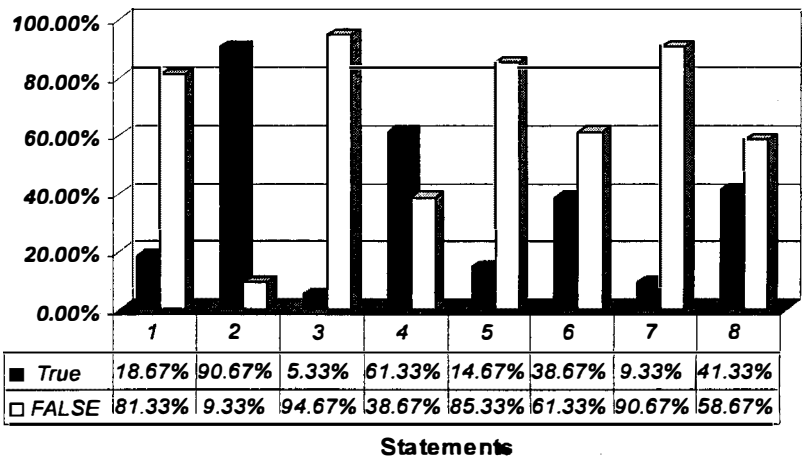


From figure 4-4 above, it was seen that lower primary pupils most frequently chose “false” for four of the statements comprising the gender indicator “physical appearance”. The only exceptions were for statements 2, 4, 6, and 8. It appeared that lower primary pupils felt that men could only wear trousers and shorts, and could not keep long hair.

Figure 4-5

Frequency Distribution of Upper Primary Pupils' True-False Responses for Physical Appearance (PA)

Frequency Distribution of Upper Primary Pupils' True-False Responses for Physical Appearance



In contrast, from the above figure 4-5, it was found that upper primary pupils most frequently chose “false” for six of the statements for “physical appearance” except for statements 2 and 4. The different responses between upper and lower primary pupils were for statements relating to hair-length for men (i.e. statements 6 and 8). This could be due to upper primary pupils holding less rigid and less conventional views regarding hairstyles. When it came to dressing, however, both upper and lower primary pupils felt that men could only wear trousers and shorts.

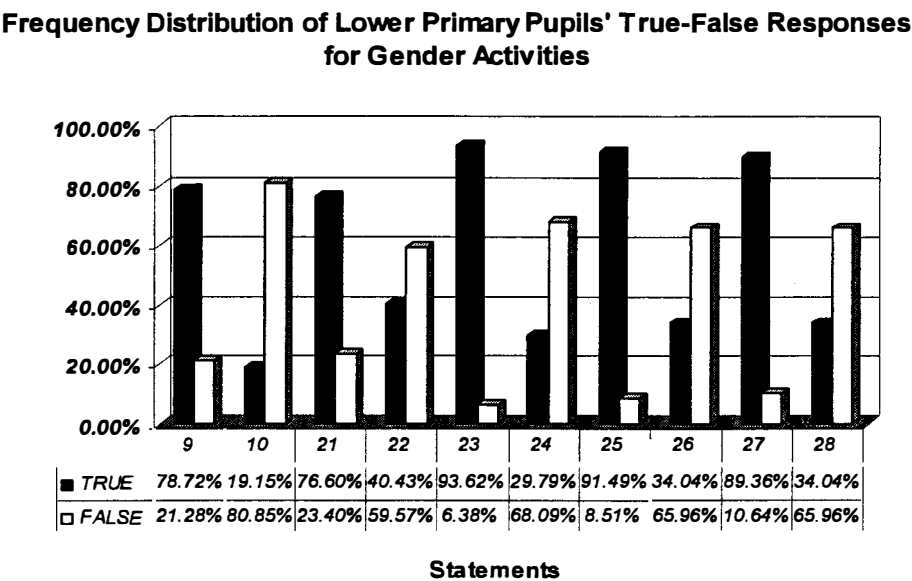
Comparing only the “true” responses from both lower and upper primary pupils in figures 4-4 and 4-5, it was found that the percentages of lower primary pupils who chose “true” for statements 1 to 8 ranged from 14.89% to 85.11%. In contrast, the range of percentages of upper primary pupils who chose “true” for statements 1 to 8 ranged from 9.33% to 90.67%. This appeared to suggest that older pupils might hold more liberal views relating to physical appearances than younger pupils.

The only exception was for statement 2 – “men cannot wear dresses and skirts” – where a higher percentage of upper primary pupils (90.67%) chose “true” compared to lower primary pupils (85.11%). This anomaly might be due

to older pupils being more aware of society’s views regarding cross-gender dressing for men.

Figure 4-6

Frequency Distribution of Lower Primary Pupils’ True-False Responses for Gender Activities (GA)



From figure 4-6 above, it can be seen that out of the 10 statements comprising the indicator of “gender-specific activities”, lower primary pupils most frequently chose “true” for statements 9, 21, 23, 25, and 27. These referred to activities generally associated with one sex or another. For example, statements 9 and 23 referred to female-type activities like “cooking” and “doing housework”, while statements 21, 25, and 27 referred to male-type activities like “fixing broken things”, “pumping petrol”, and “taking up sports like soccer and basketball”.

When it came to statements referring to ‘gender-neutral’ activities (i.e. statements 10, 22, 24, 26, and 28), lower primary pupils most frequently chose “false”.

Figure 4-7

Frequency Distribution of Upper Primary Pupils' True-False Responses for Gender-type Activities (GA)

Frequency Distribution of Upper Primary Pupils' True-False Responses for Gender Activities

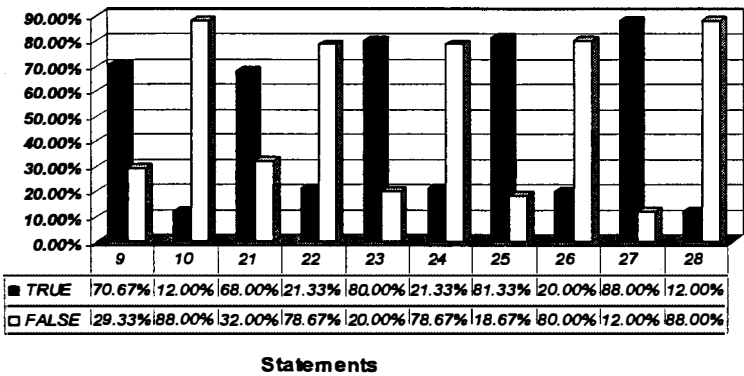


Figure 4-7 above showed the frequency distribution for upper primary pupils. Their responses were similar to those of lower primary pupils: “true” was chosen most often for statements 9, 21, 23, 25, and 27, while “false” was chosen most frequently for the remaining statements.

Comparing figures 4-6 and 4-7, the percentage of lower primary pupils who chose “true” for statements relating to gender activities ranged from 29.79% to 91.49%. In contrast, the percentage of upper primary pupils who chose “true” for these statements relating to gender activities ranged from 12% to 88%. It appeared that slightly greater percentage of younger pupils as compared to older pupils chose “true” for gender-specific activities. This might suggest that lower primary pupils were a little more inclined to hold more conservative views regarding gender activities.

Although a high percentage of both lower and upper primary pupils chose “true” for statements relating to gender activities, it was observed that less than 50% of both lower and upper pupils chose “true” for statements 10, 22, 24, 26, and 28. This might indicate that majority of Singapore pupils – whether lower or upper primary – tended to hold more gender-neutral views regarding specific activities (e.g. cooking, repairing things that are broken, pumping petrol into cars) rather than gender-specific views.

For the remaining statements, more than 70% of lower and upper primary pupils had chosen “true”. It was found that with the exception of

statement 27 (“men can take up sports like soccer and basketball”), the percentage of upper primary pupils who chose “true” was about 10% lesser than the percentage of lower primary pupils who chose “true” for the same statements. Almost equal percentages of lower and upper primary pupils chose “true” for statement 27.

Figures 4-8 and 4-9 below showed the respective frequency distributions of lower and primary pupils’ true-false responses for the statements that comprised SC1.

Figure 4-8

Frequency Distribution of Lower Primary Pupils’ True-False Responses to Social Class Stereotype 1 (SC1)

Frequency Distribution of Lower Primary Pupils' True-False Responses for Social Class Stereotypes 1

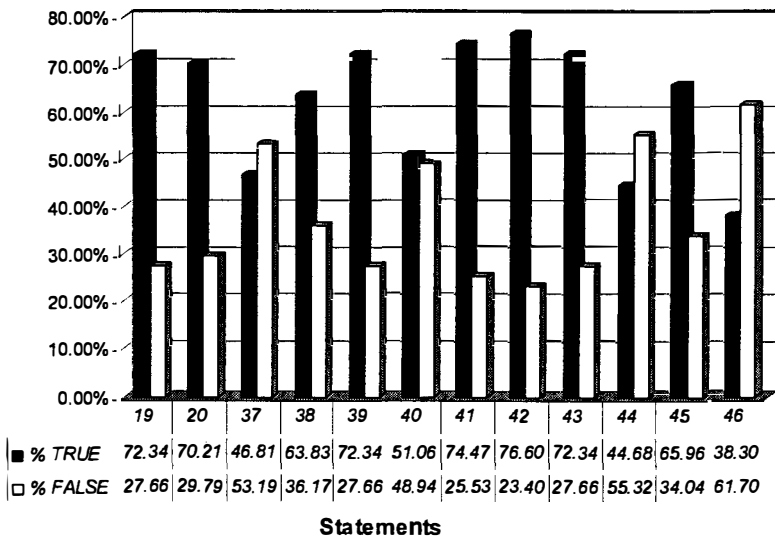
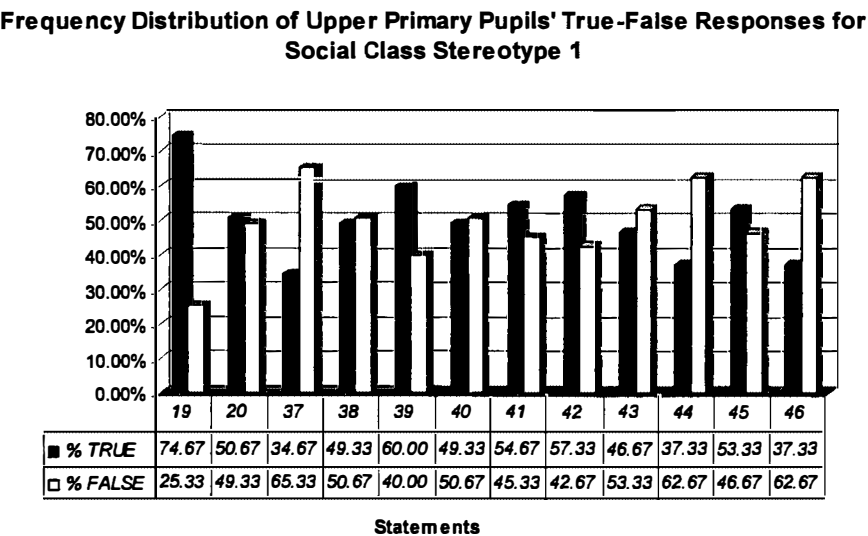


Figure 4-9

Frequency Distribution of Upper Primary Pupils' True-False Responses to Social Class Stereotype 1 (SC1)



Comparing figures 4-8 and 4-9 above, it was seen that although both lower and upper primary pupils provided similar responses to almost all statements, the proportion of upper primary pupils who responded with “true” was not as high as for lower primary pupils. For example, upper primary pupils’ responses of “true” for statements 19, 20, 37 to 46 ranged from 37% to 75%. In contrast, lower primary pupils’ “true” responses for the same statements ranged from 38% to 76%. In contrast, slightly higher percentage of upper primary pupils rated statement 19 (“rich people can afford to own cars”) as “true” compared to lower primary pupils (75% vis-à-vis 72%).

When it came to statements 20 (“ poor people cannot afford to own cars”), 41 (“rich people wear expensive clothes”), 42 (“poor people do not wear expensive clothes”), and 43 (“rich people play golf”) both lower and upper primary pupils had different percentages of “true” responses. More upper primary pupils felt that the statements were not necessarily true (i.e. a smaller percentage of them had responded “true” to all four statements) as compared to lower primary pupils. There was about 20% difference in lower and upper primary pupils’ “true” responses.

Figures 4-10 and 4-11 below showed the frequency distribution of lower and upper primary pupils' true-false responses to statements comprising SC2.

Figure 4-10

Frequency Distribution of Lower Primary Pupils' True-False Responses to Social Class Stereotype 2 (SC2)

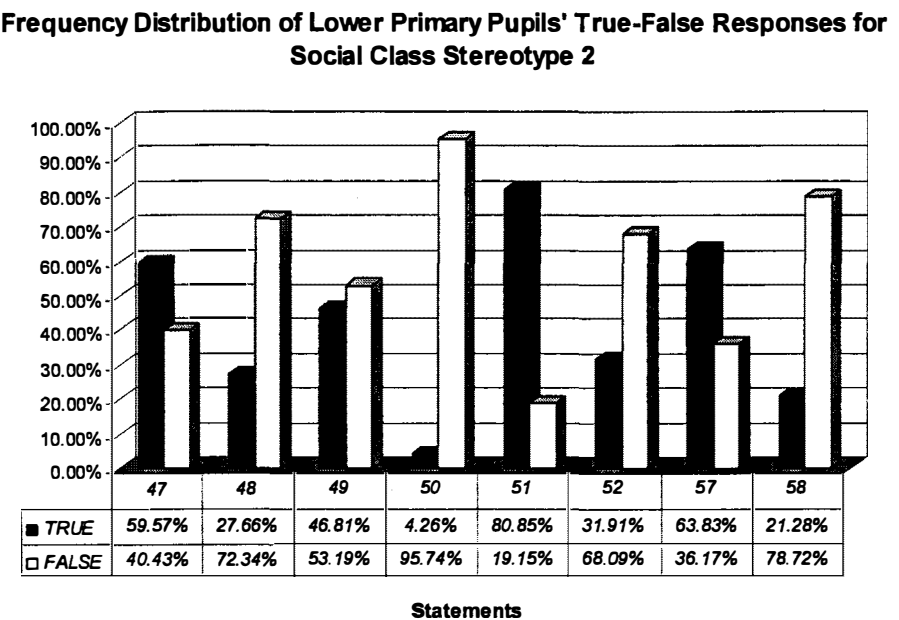
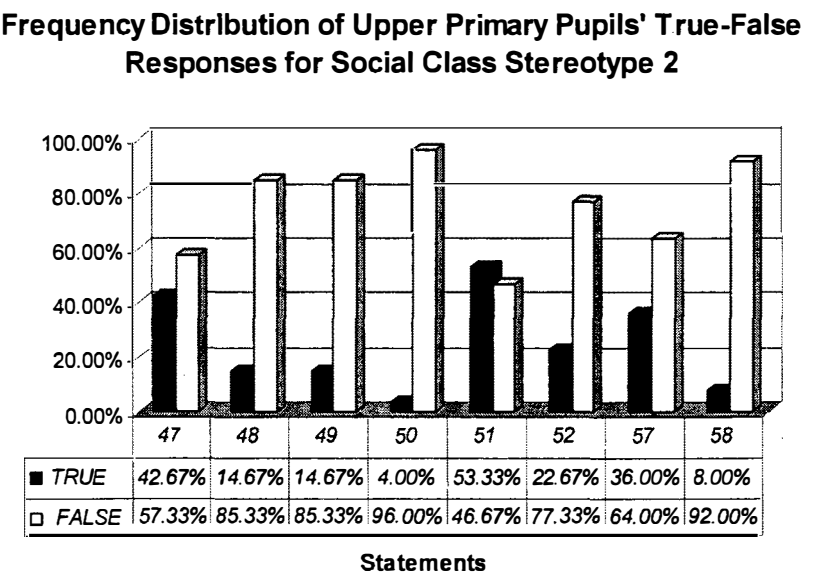


Figure 4-11

Frequency Distribution of Upper Primary Pupils' True-False Responses to Social Class Stereotype 2 (SC2)



Comparing figures 4-10 and 4-11 above, it was seen that both lower and upper primary pupils responded in a similar manner for statements 48 to 52, and 58. More pupils had indicated ‘false’ instead of ‘true’ for these statements. The only difference was in the percentage of pupils’ responses: a higher

percentage of upper primary pupils had indicated ‘false’ than lower primary pupils. For example, 85% of upper primary pupils had indicated “false” for statement 48 while only 72% of lower primary pupils had done so.

The responses of lower and upper primary pupils differed for statements 47 (“rich people speak English well”) and 57 (“rich people are clever”). A higher proportion of lower primary pupils had indicated “true” for these statements as compared to upper primary pupils, where more of them had indicated “false” for these statements.

Figures 4-12 to 4-15 that follow showed the frequency distributions of male and female pupils’ “true” and “false” responses for each of the subgroups (i.e. GS and PT) where the differences in mean between male and female pupils were significant.

Figure 4-12

Frequency Distribution for Boys’ True-False Responses for Gender-type Subjects (GS)

Frequency Distribution of Boys’ True-False Responses for Gender-type Subjects

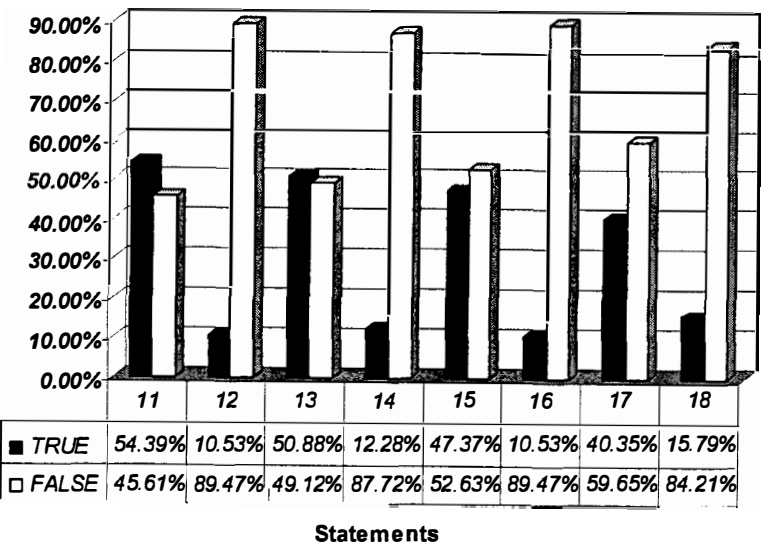
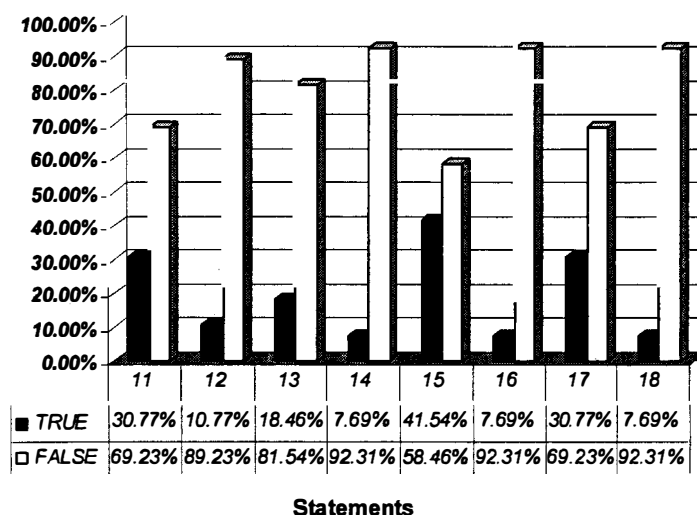


Figure 4-13

Frequency Distribution for Girls' True-False Responses for Gender-type Subjects (GS)

Frequency Distribution of Girls' True-False Responses for Gender-type Subjects



Figures 4-12 and 4-13 above showed the frequency distribution of boys and girls' respective true-false responses for GS. Comparing the charts, it was seen that for all statements, a higher percentage of girls responded with "false". In contrast, a higher percentage of boys responded with "false" only to statements 12, 14, 15, 16, 17, and 18. When it came to statements 11 ("men like subjects such as Mathematics and Science") and 13 ("men will score high marks for Mathematics and Science"), a higher percentage of boys felt that this was "true".

Even though a higher percentage of both boys and girls rated "false" for statements:

- 14 ("women will not score high marks for Mathematics and Science"),
- 16 ("men do not like subjects such as English and Mother Tongue"),
- 17 ("women will score high marks for English and Mother Tongue") and
- 18 ("men will not score high marks for English and Mother Tongue")

it was observed that a higher percentage of girls than boys had responded with "false" for these statements. For example, the difference in percentage was up to 10% for statement 17.

Figures 4-14 and 4-15 below graphed the frequency distributions for boys and girls' respective true-false responses to the statements that comprised PT.

Figure 4-14

Frequency Distribution for Boys' True-False Responses for Personality Traits (PT)

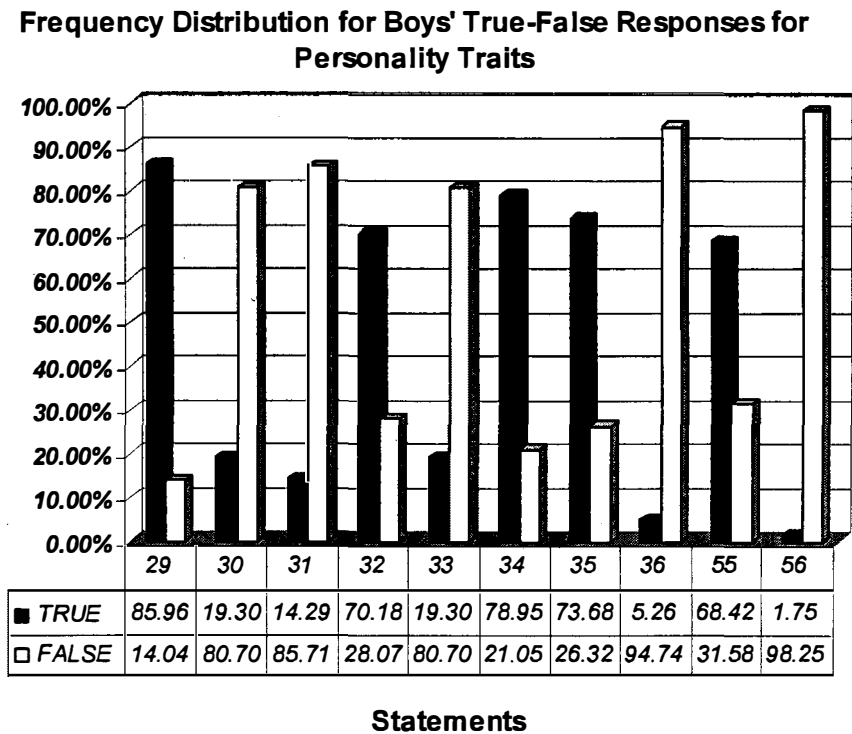
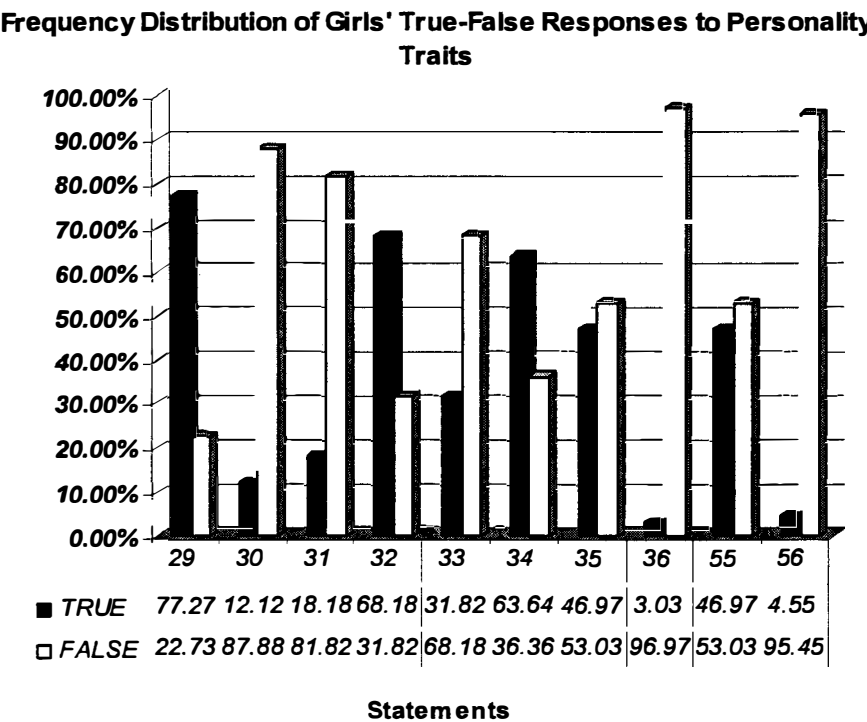


Figure 4-15
 Frequency Distribution of Girls' True-False Responses to Personality Traits (PT)



Comparing figures 4-14 and 4-15, it was seen that both boys and girls provided similar responses for almost all statements. For example, a higher proportion of boys and girls indicated “true” for statements 29 (“men are strong”), 32 (“women are tidy”), and 34 (“women are gentle”). The percentage of boys who indicated “true” for these statements ranged from 70.18% for statement 32, 79.95% for statement 34, to 85.96% for statement 29. The percentage of girls who indicated “true” for these statements were 68.18%, 63.6% and 77.27% respectively. It appeared that not as many girls as boys felt that these statements were “true”.

It was statements 35 (“men are clever”) and 55 (“men do important work”) where the responses between boys and girls differed. A higher percentage of boys felt that statements 35 and 55 were “true” – 73.68% and 68.42% respectively. In contrast, slightly more than of the girls in the sample (i.e. 53.03% of girls) felt that statements 35 and 55 were “false”.

In summary, it was found that lower primary pupils held stronger stereotypical views about gender appearances, activities, and social class stereotypes than their upper primary counterparts. The specific items in gender

appearances that younger pupils held more stereotypical views were in clothing and hairstyles. Younger pupils also had more stereotypical views about activities that were distinctly related to each gender. For example, feminine activities like “cooking”, and “doing housework”, or masculine activities like “fixing broken things”, “pumping petrol”, and “taking up sports like soccer and basketball”.

In contrast, the subgroups that distinguished the views of boys and girls were about gender-type subjects and personality traits. Male pupils – irrespective of age – were more likely to hold stronger gender stereotypical views than female pupils. This was especially noticeable for statements related to gender-type subjects like “men like subjects such as Mathematics and Science” and “men will score high marks for Mathematics and Science”, and personality traits like “men are clever” and “men do important work”. Girls, on the other hand, tended to hold less stereotypical views than boys.

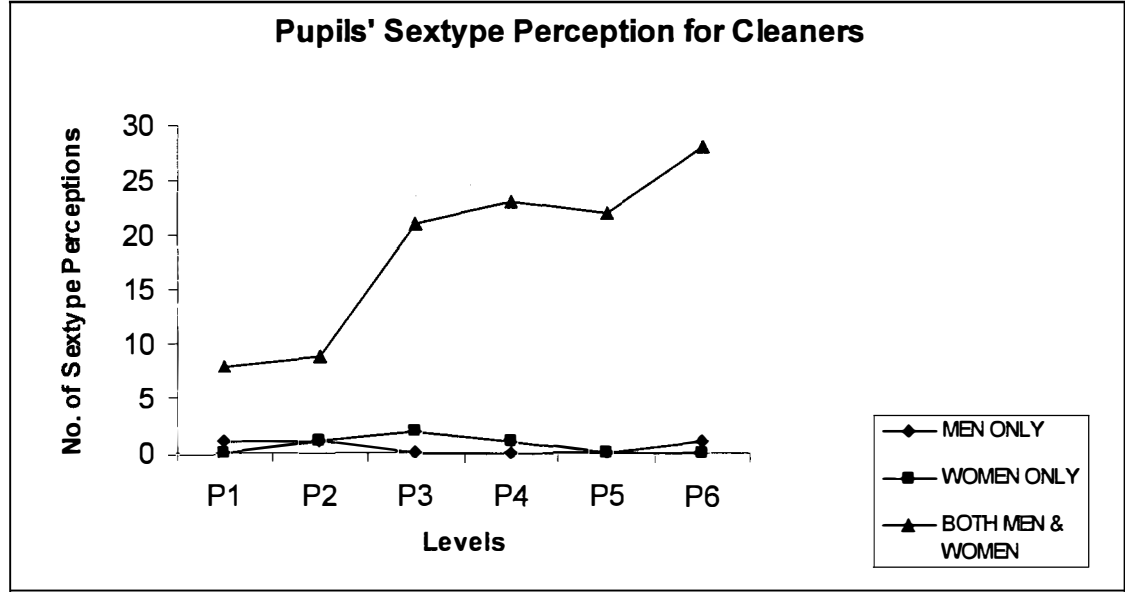
Part B: Sextype and Prestige

There was a two-fold purpose to part B. First was to determine pupils' perceptions regarding which sex was considered most suitable to do the work for the following eight occupations – cleaner, construction worker, doctor, fire fighter, flight attendant, nurse, pilot, and teacher. Second was to determine how important pupils perceived each of the above eight occupations were. Degree of importance was seen as a proxy for prestige.

For this section, the responses of only 118 pupils from primary one to six were analysed. Five primary one pupils had to be excluded from the analysis as they did not give any response to at least one occupation. One primary one pupil had not even responded to four occupations. Pupils from the other levels did not omit any responses at all.

Figures 4-18 to 4- 25 plotted pupils' responses against their educational levels for each of the eight occupations. Analysis for each chart would be discussed adjacent to the diagram.

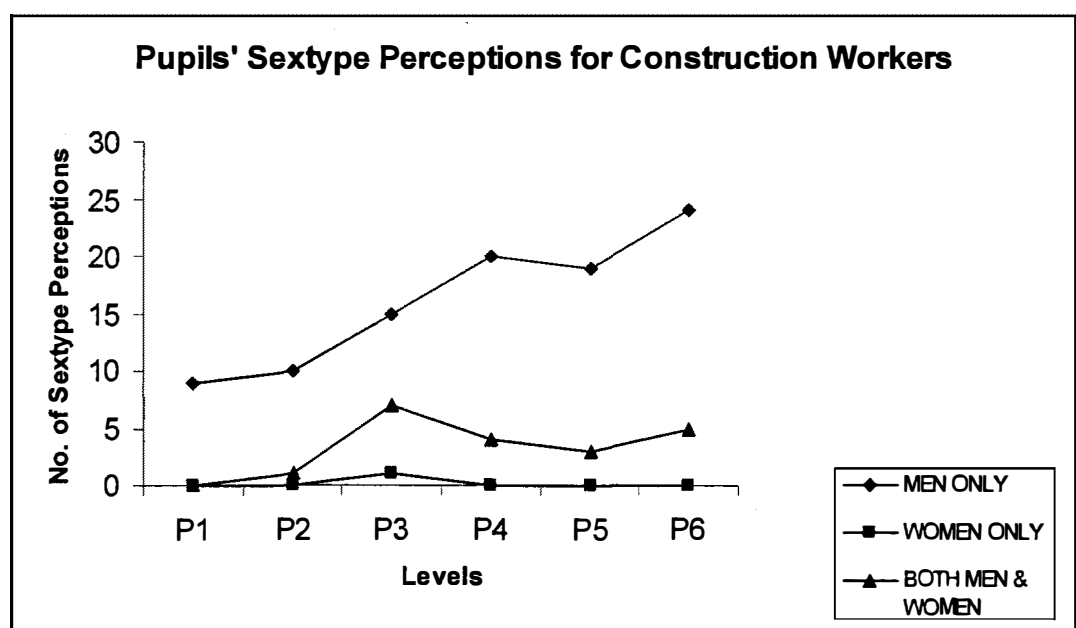
Figure 4-18
Pupils' Sextype Perception for Cleaners



The above line-graph showed that 111 pupils, irrespective of which level they were in, felt that the work of a cleaner could be done by both men and women. Pupils in primary five and six unanimously felt that the cleaner's job could be done by both men and women.

Figure 4-19

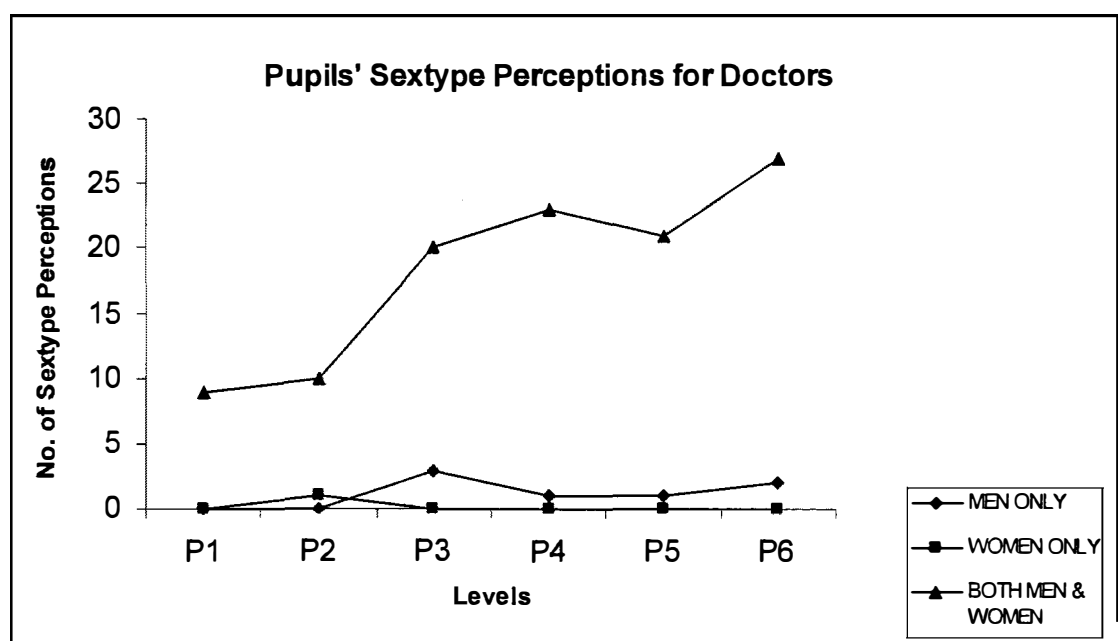
Pupils' Sextype Perceptions for Construction Workers



From the above, it can be seen that 97 pupils (out of a total of 118 pupils) – irrespective of whether they were in lower or upper primary – felt that only men could do the work of construction workers. Although 17% of (or 20) pupils felt that both men and women could do the job, almost all of them did not feel that the job was suitable for women. Only one primary three pupil felt that construction work could be done only by women.

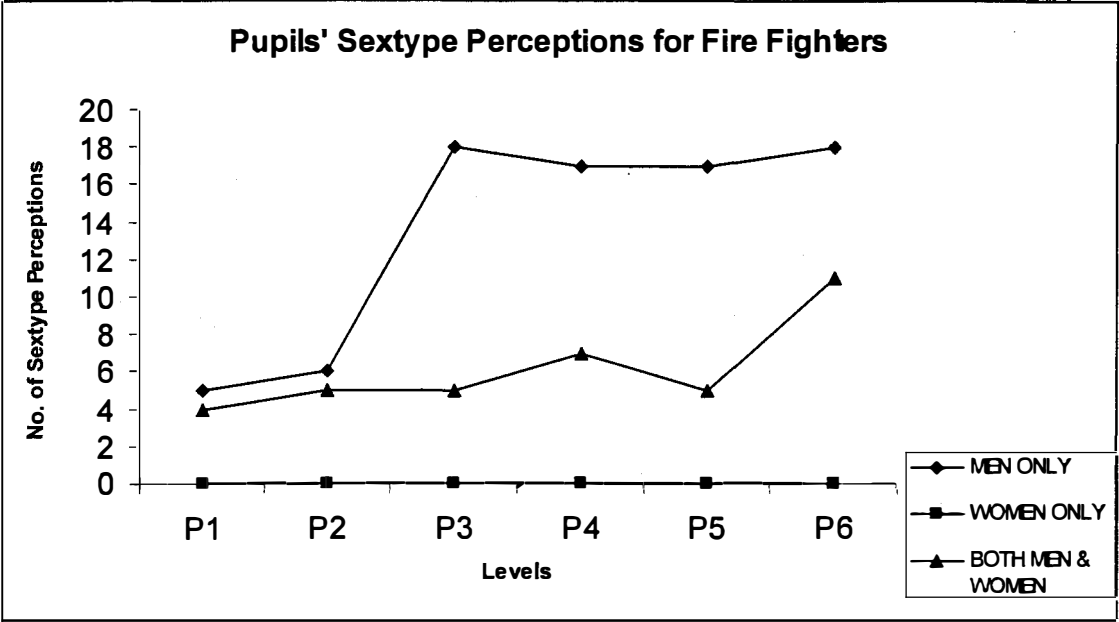
Figure 4-20

Pupils Sextype Perceptions for Doctors



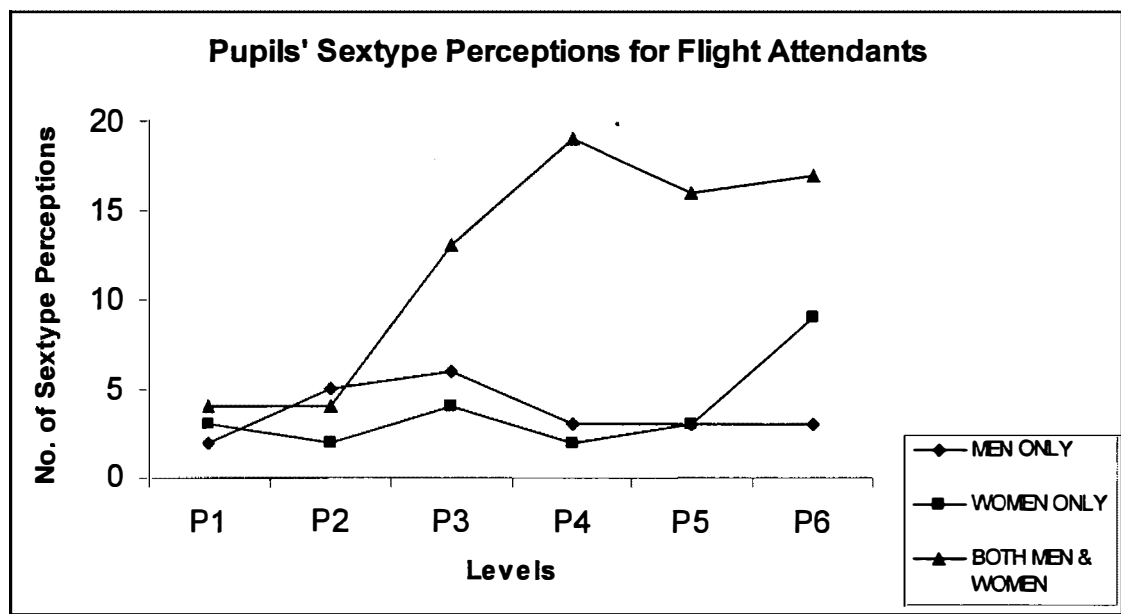
From the above chart, it can be seen that 110 pupils felt that the work of a doctor could be done by both men and women. Only 7 pupils felt that the work could be done by men only. It was also interesting to note that none of the pupils, except for one primary 2 pupil, felt that the work of doctor was suitable only for women.

Figure 4-21
Pupils' Sextype Perceptions for Fire Fighters



An overwhelming majority of pupils (80 pupils) from all educational levels – felt that only men would be suitable to do the job of a fire-fighter. No one felt that women could handle the work at all.

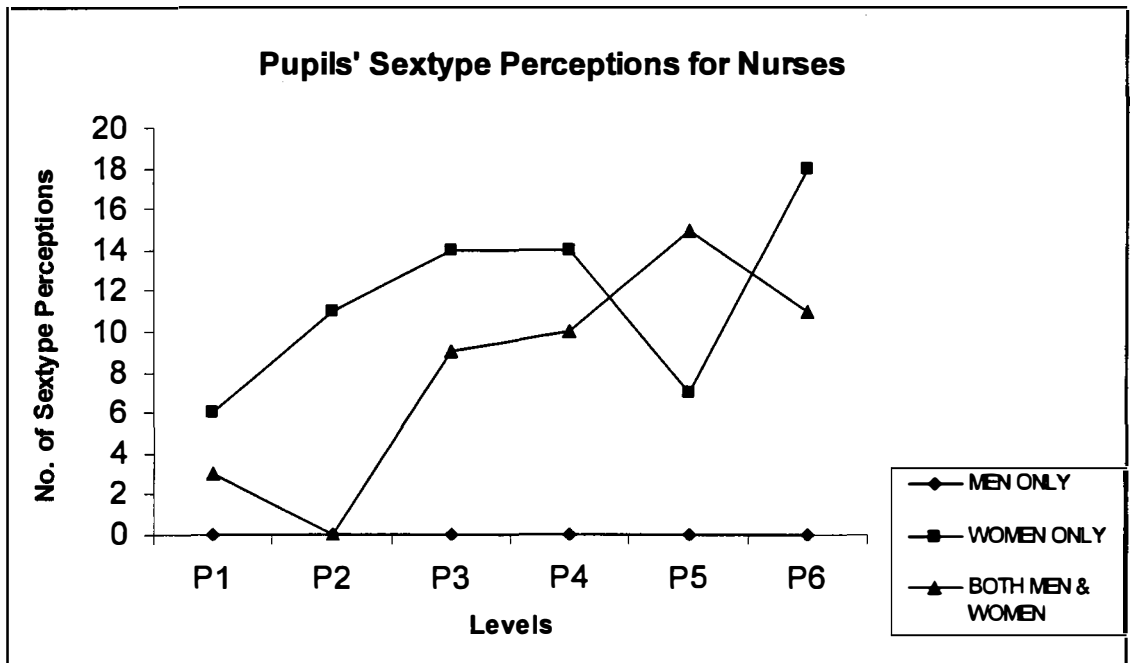
Figure 4-22
Pupils' Sextype Perceptions for Flight Attendants



From the figure above, 73 pupils from all educational levels felt that both men and women could become flight attendants. The highest group amongst all the educational levels that felt the work of a flight attendant was most suitable only for men was 5 primary 2 pupils. The other educational levels, including primary 1 pupils felt that the work could be done by both men and women.

Figure 4-23

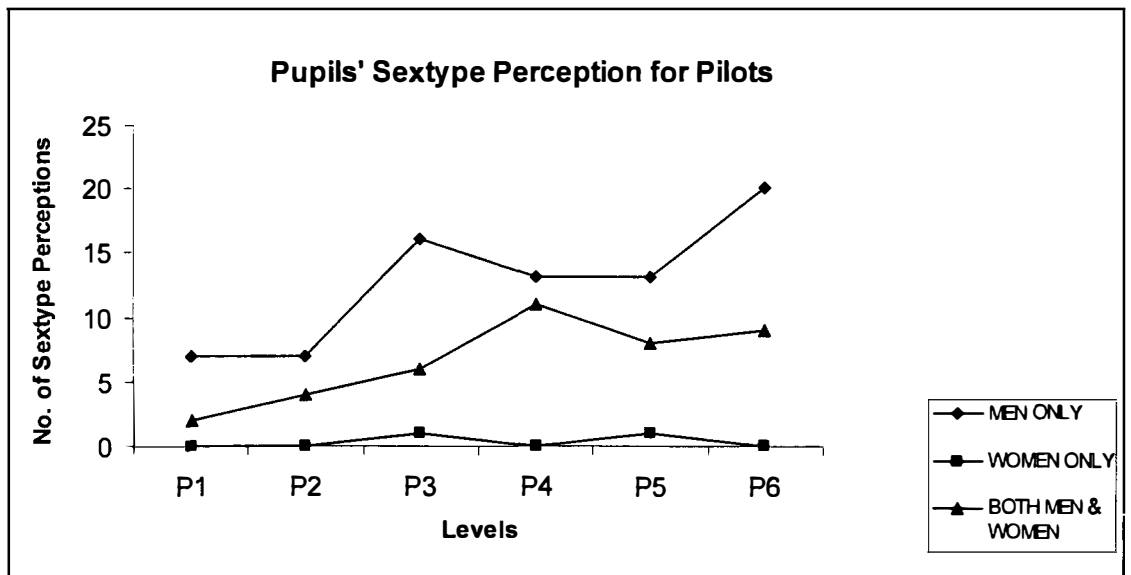
Pupils' Sextype Perceptions for Nurses



From figure 4-23 above, 70 pupils – irrespective of educational level – felt that the work of nurses was most suitable for women only. Only 15 primary five pupils felt that it could be done by both men and women. No one felt that the work of a nurse was suitable work for only men.

Figure 4-24

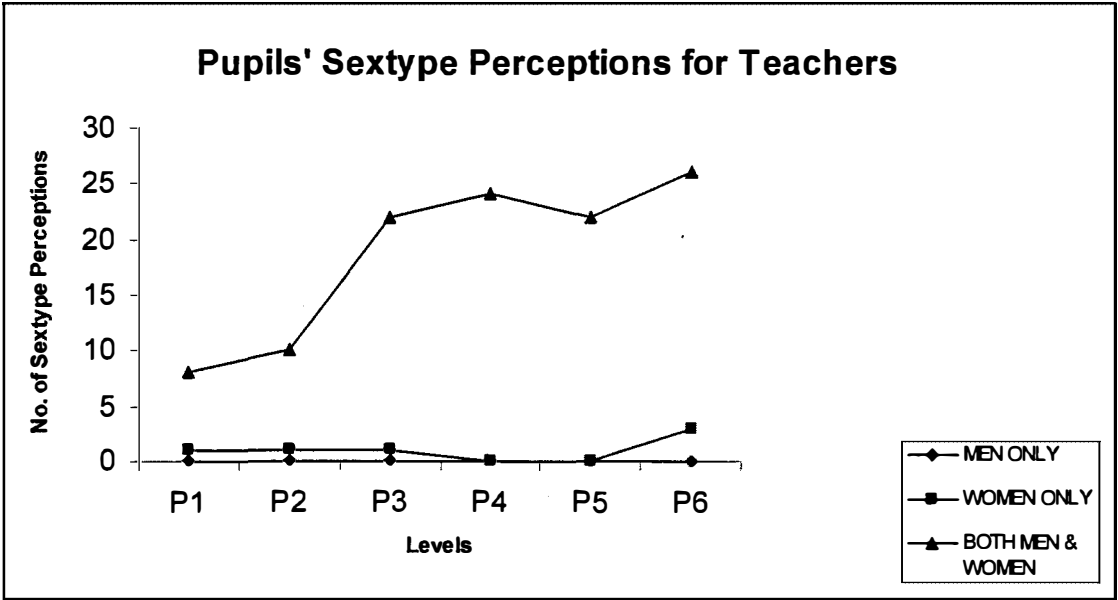
Pupils' Sextype Perception for Pilots



According to figure 4-24 above, 76 pupils from all educational levels felt that the work of a pilot was most suitable for men only. 40 pupils from all

educational levels also felt that a pilot's work could be done by both men and women.

Figure 4-25
Pupils Sextype Perceptions for Teachers



It can be seen from the figure above, that an overwhelming majority of pupils (112 out of a total of 118) perceived that the work of teachers could be done by both men and women. A small number of 6 pupils (comprising three lower primary pupils, and three primary six pupils) felt that only women could be teachers. No one felt that men only could become teachers.

The following table summarized pupils' sextype perceptions for the following eight occupations:

Table 4-10
Summary Findings of Pupils' Sextype Perceptions

Occupations	Men Only	Women Only	Both men and women
Cleaner	3	4	111
Construction worker	97	1	20
Doctor	7	1	110
Fire-fighter	81	0	37
Flight attendant	22	23	73
Nurse	0	70	48
Pilot	76	2	40
Teacher	0	6	112

Note Numbers in bold indicate the highest responses from all primary pupils

From summary table 4-10 above, it was seen that for primary school pupils, occupations like “cleaner”, “doctor”, “flight attendant”, and “teacher” were androgynous jobs where both men and women could do the work. Pupils’ responses did not coincide with the representation ratios listed in Table 3-1 (from chapter three), which stated that “cleaner” had an over-representation of women in this occupation as compared to the total workforce, while “doctor”, and “teacher” had an under-representation of women. “Flight attendant” belonged to the group that had an equal representation of women in this occupation as in the total workforce.

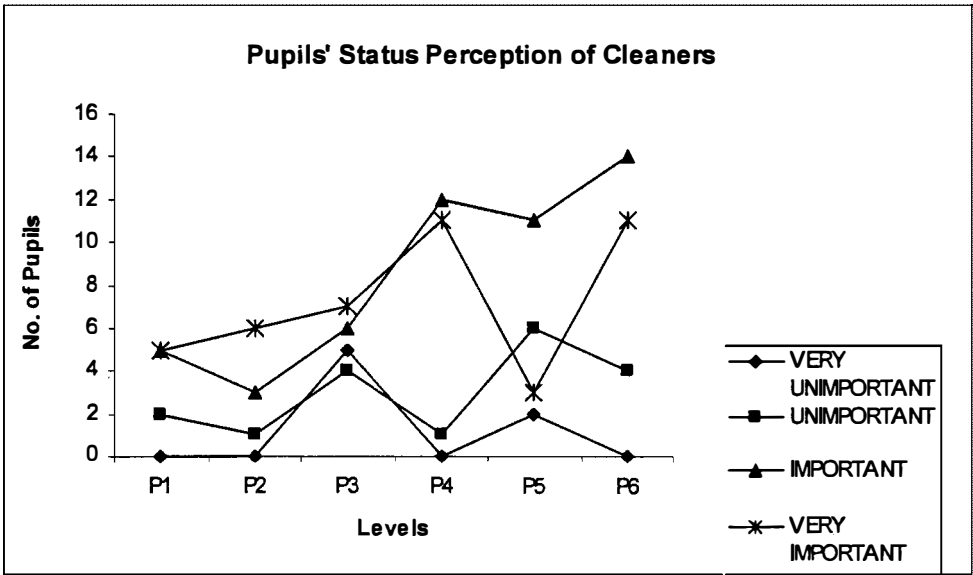
For these same pupils, occupations like “construction worker”, “fire-fighter”, and “pilot” were male-dominated jobs. The representation ratios for these occupations showed that “construction worker” belonged to the occupational group that had an over-representation of women, while “fire-fighter” and “pilot” were from the occupational group where women in this occupation were equally represented as women in the total workforce (again, see Table 3-1). Only nursing was an occupation where primary pupils felt that only women were the most suitable. “Nurses”, however, belonged to the occupational group where women were equally represented in this occupation as women in the workforce.

As mentioned earlier, the second-fold purpose of part B was determine how prestigious pupils thought the above eight occupations were. For this portion, 119 pupils' responses were used (one more than for sex-type perceptions) instead of the full 123 pupils. This was because four lower primary pupils had missed out responding to at least one occupation.

The following figures (4-26 to 4-33) plotted pupils' responses against educational levels.

Figure 4-26

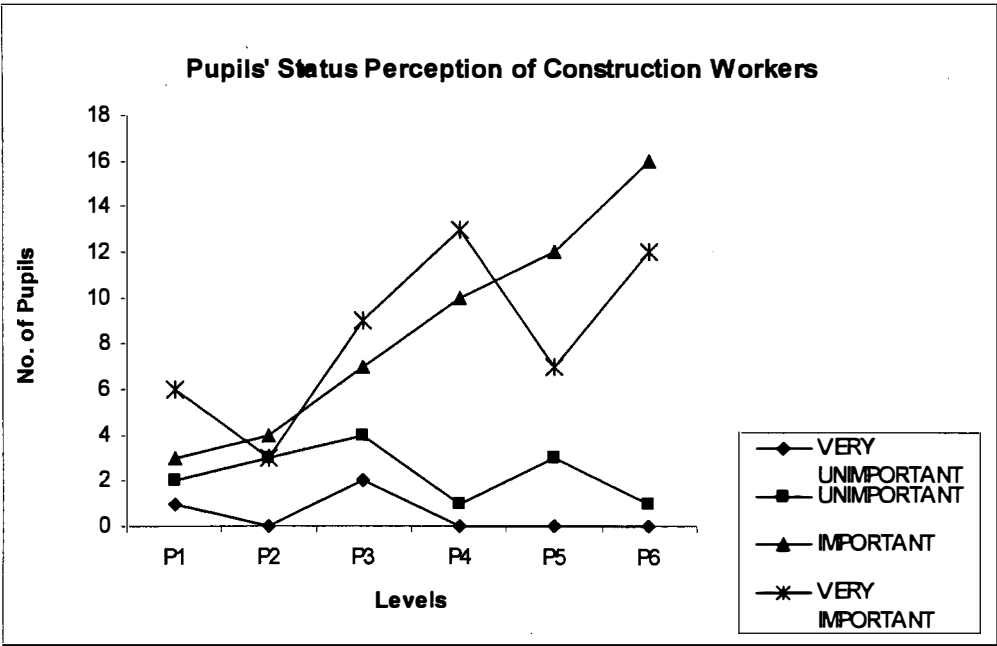
Pupils' Perceptions of the Status of Cleaners



From the above, it can be seen generally that many pupils (a total of 94 pupils) from all educational levels had rated the work of cleaners as either "important" or "very important". The highest rating that many pupils from P1 to P3 gave was "very important. In contrast, the highest rating that many pupils from P4 to P6 gave was "important". A higher number of pupils (5) from primary 3 had rated the work of cleaners as "very unimportant" than "unimportant". Amongst pupils from primary 5, more of them had rated "cleaner" as "unimportant" than "very important" (3). No pupil from primary 1, 2 and 4 had rated "cleaner" as "very unimportant" but a total of four from these same levels had rated them as "unimportant".

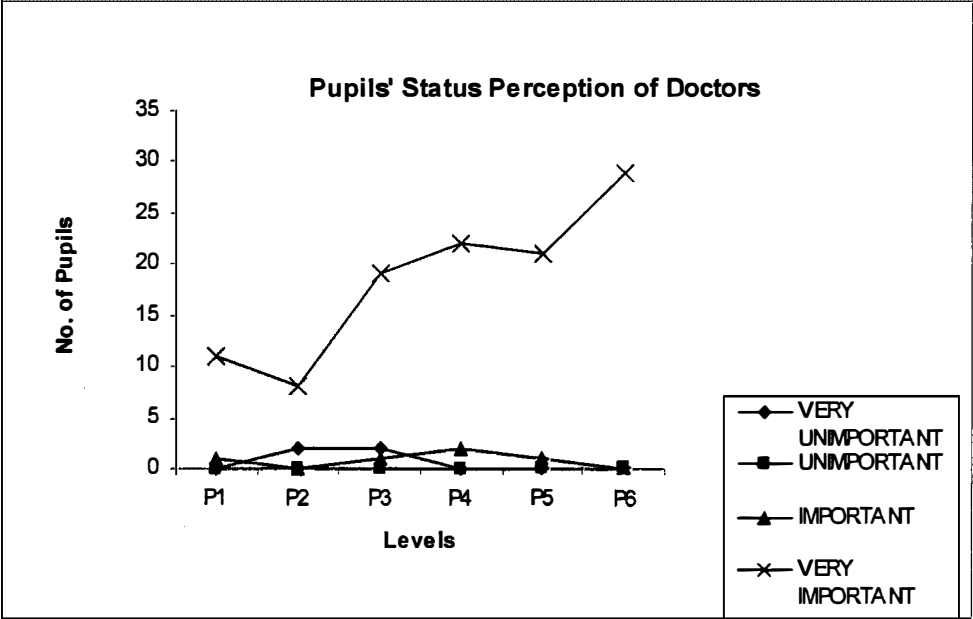
Figure 4-27

Pupils' Perceptions of the Status of Construction Workers



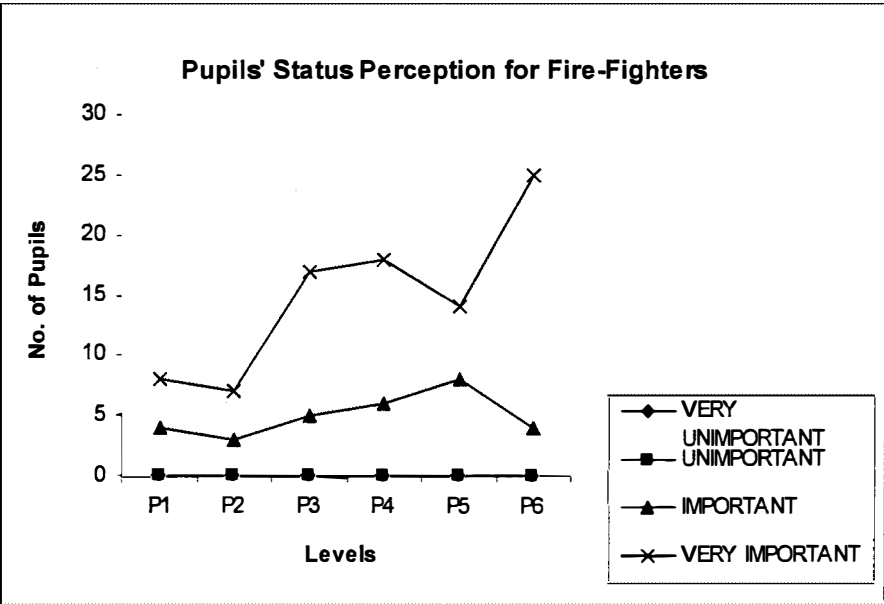
Pupils' responses for construction workers were similar to their responses for cleaners – a total of 102 pupils (from all levels) felt that the work of a construction worker was either “important” or “very important”. Amongst pupils from P5 and P6, however, the highest rating that more pupils gave was “important” rather than “very important”. In contrast, more pupils from P1, P3, and P4 gave a rating of “very important”. The highest rating that more P2 pupils gave was “important”. The same number (3) of pupils rated “construction worker” as either “very important” or “unimportant”. A total of 14 pupils, across all levels, did rate this occupation as “unimportant”.

Figure 4-28
Pupils' Perception of the Status of Doctors



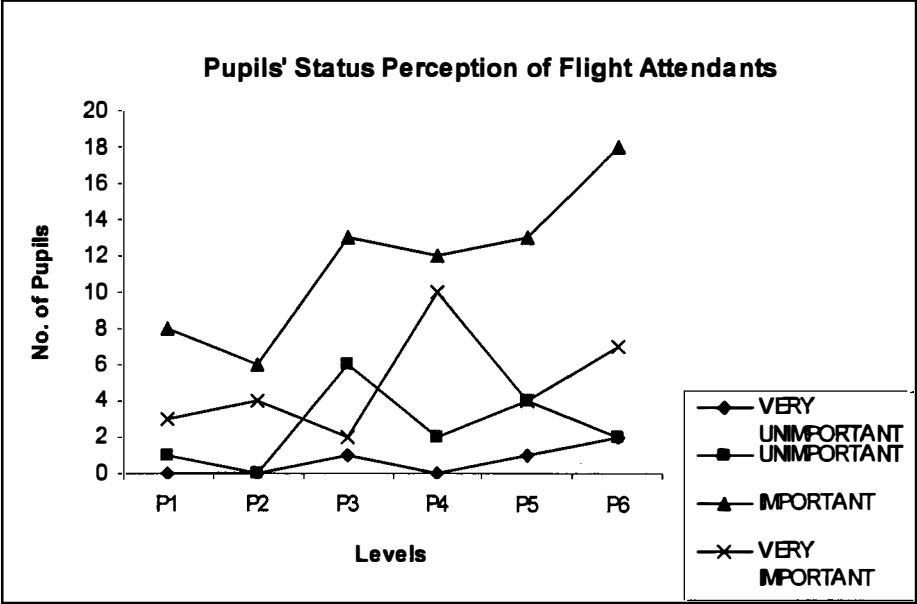
Pupils' perceptions for the work of doctors were totally different than for cleaners and construction workers. An overwhelming 110 pupils across all levels rated "doctors" as "very important". Only a small number of primary five pupils had rated "doctors" as "important". No upper primary pupil had rated "doctors" as "unimportant" or "very unimportant". In contrast, four pupils from P2 and P3 did rate doctors as "unimportant".

Figure 4-29
Pupils' Perceptions of the Status of Fire-fighters



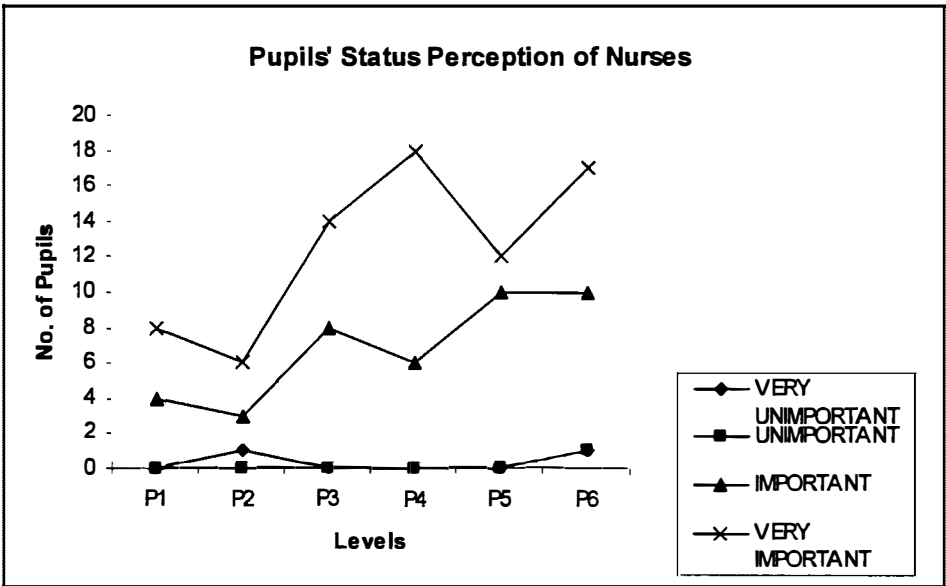
When it came to the work of fire-fighters, all pupils from primary 1 to 6 unanimously rated them as either “important” or “very important”. No one chose “unimportant” for this occupation.

Figure 4-30
Pupils’ Perceptions of the Status of Flight Attendants



From the above, it can be seen that a larger number of pupils (70 in total) from all educational levels chose “important” as the higher rating for “flight attendant” than “very important” (a total of only 30 pupils. Six pupils from primary 3, the highest number amongst all the levels, had indicated that the work of flight attendants was “unimportant”. The same number of pupils (four each) in P5 had rated “flight attendant” as either “very important” or “unimportant”.

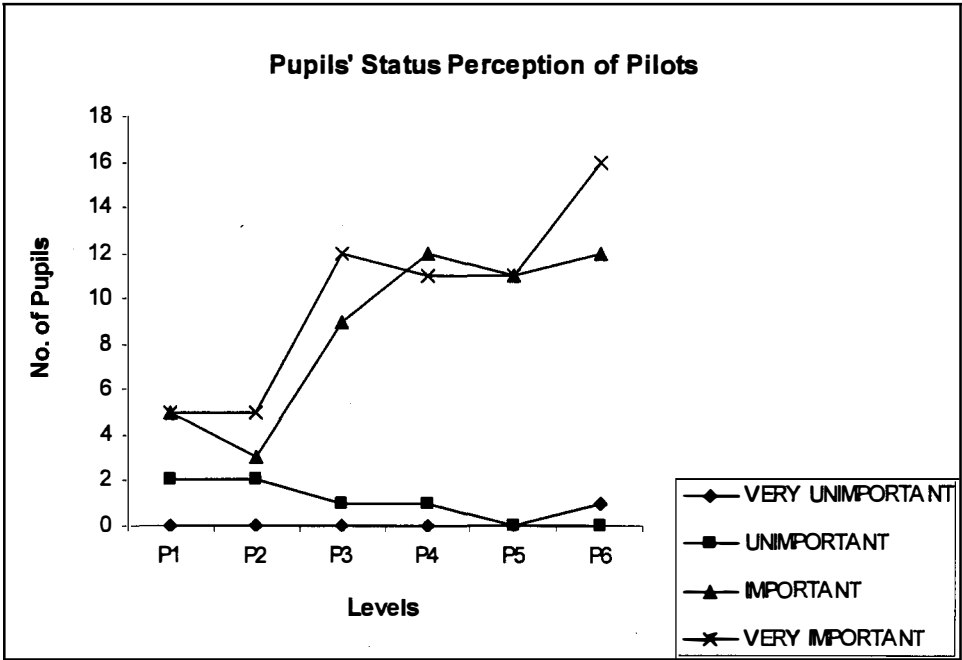
Figure 4-31
Pupils' Perceptions of the Status of Nurses



Although nurses come from the same healthcare industry as doctors, pupils' responses to their work were different. A total of 75 pupils from all levels had rated "nurses" as "very important" while a total of 41 pupils had rated them as "important". No one from all levels except P6 had rated them as "unimportant". Only one pupil from P6 had rated "nurse" as "unimportant" while one pupil from P2 had rated them as "very unimportant".

Figure 4-32

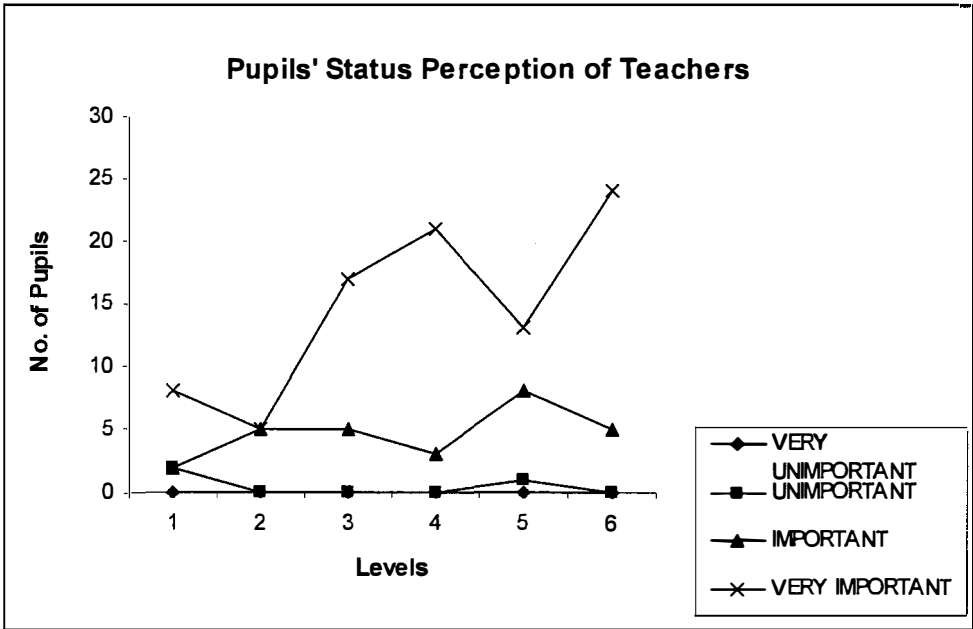
Pupils' Perceptions of the Status of Pilots



When it came to pilots, only primary 5 pupils had unanimously either rated their work as “important” or “very important”. No one, from P1 to P5, had rated pilots as “very unimportant”. One pupil from P6, however, had rated pilots as “very unimportant”. A total of six pupils had felt that pilots were “unimportant”.

Figure 4-33

Pupils' Perceptions of the Status of Teachers



No pupil, across all levels, had rated teachers as “very unimportant”. Only a total of three pupils from P1 and P5 had rated them as “unimportant”. An overwhelming 116 pupils had either rated them as “important” or “very important”.

Although the charts on the previous pages showed pupils’ responses according to the four possibilities of “very unimportant”, “unimportant”, “important”, and “very important”, it was seen that the majority of pupils had predominantly rated their responses as “important” and “unimportant”. Since the distinction between “very unimportant” and “unimportant” was too fine, pupils’ responses for these two classifications were combined and reported as “unimportant”. Similarly, pupils’ responses for “important” and “very important” were also combined and reported as “important”. The summary table below (Table 4-11) thus used “unimportant” and Important” as the two main classifications and rank ordered the occupations by “importance” starting with the most important to the least.

It was seen that the most prestigious occupation was “fire-fighter”. Tied in second place were “nurses” and “teachers”. “Doctors” could only manage a status ranking of fourth position. It was interesting to observe that pupils considered “flight attendants” as being less prestigious than “construction workers”. The least prestigious occupation was “cleaner”.

From the figures above, it was observed that primary five appeared to be an educational level where pupils’ prestige perceptions differed compared to the other educational levels.

Table 4-11
Summary Table of Pupils’ Status Perceptions

	UNIMPORTANT	IMPORTANT
Fire-fighter	0	119
Nurse	3	116
Teacher	3	116
Doctor	4	115
Pilot	7	112
Construction Worker	17	102
Flight attendant	19	100

	UNIMPORTANT	IMPORTANT
Cleaner	25	94

Comparing table 4-11 with table 3-2 (from chapter three), it was seen that pupils from this study had rank ordered “fire-fighter” as the most prestigious occupation. This was in direct contrast to table 3-2, which placed “doctor” and “teacher” as occupations that required the highest skill level, and hence by implication most prestigious. According to table 3-2, “fire-fighter” only required second lowest skill level (i.e. skill level 2).

Only “cleaner” coincided with table 3-2’s findings (see chapter three).

Part C: Occupational Knowledge, Preferences, and Non-Preferences

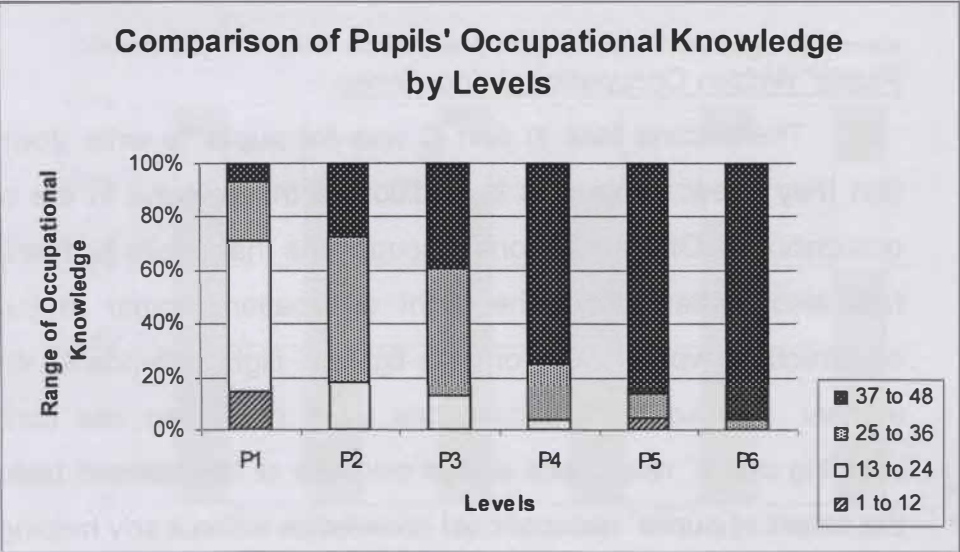
The four tasks found in part C of the survey questionnaire attempted to investigate pupils' occupational awareness in terms of their occupational knowledge, their occupational preferences, and occupational non-preference (i.e. those occupations that they would reject). There were two tasks related to discovering pupils' occupational knowledge.

Pupils' Circled Occupational Knowledge

For the first task to test pupils' occupational knowledge, they were given a list of 48 occupations and instructed to circle all those occupations that they knew. A table showing the total number of occupations circled by each pupil from P1 to P6 is provided in appendix 4-1. The minimum number of occupations known was 7 occupations. The maximum number of occupations known was 48 occupations. This then provided an occupational knowledge range of 41 occupations.

Each pupil's total number of circled occupations was collated under one of four possible ranges: between 1 to 12 occupations, between 13 to 24 occupations, between 25 to 36 occupations, and between 37 to 48 occupations. Figure 4-34 below shows the distribution of pupils' responses in these four ranges of circled occupations.

Figure 4-34
Comparison of Pupils' Occupational Knowledge from a list of given occupations



It can be clearly seen that occupational knowledge increased with age. Overwhelming 97.4% (or 73) upper primary pupils recognised more than half of all occupations listed in part C as compared to only 68.8% (or 33) lower primary pupils.

Table 4-12

Mean number of occupations circled for each educational level

			Educational Levels					
			P1	P2	P3	P4	P5	P6
Total	number	of	302	368	783	960	891	1,253
occupations circled								
Total number of pupils by level			14	11	23	24	22	29
Mean	number	of	21.6	33.5	34.0	40.0	40.5	43.2
occupations circled								

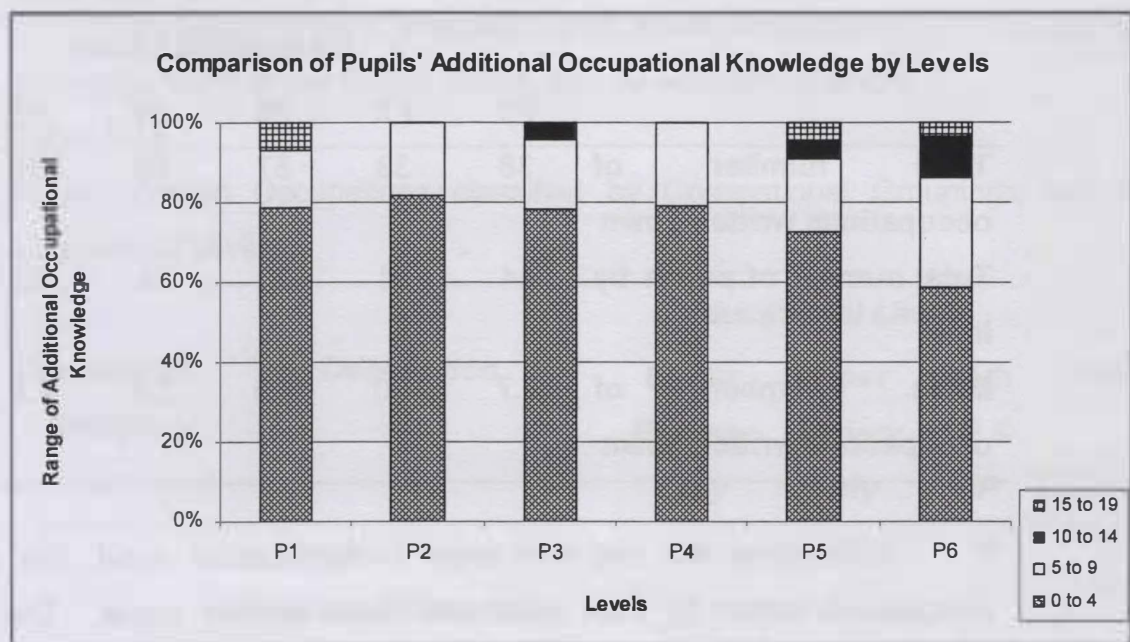
The above table highlighted the mean number of occupations circled by pupils from P1 to P6. Again, it was seen that as pupils grew older, they were able to circle increasingly more occupations. The greatest increase in occupational knowledge occurred between P1 and P2 where there was a 55%

increase. The increases in occupational knowledge from P2 to P6 were 1.5%, 17.6%, 1.25%, and 6.7% respectively.

Pupils' Written Occupational Knowledge

The second task in part C was for pupils to write down additional jobs that they knew. This was in addition to those found in the original list of 48 occupations. Of the additional occupations that pupils had written down, many had also written down the eight occupations found in part B - cleaner, construction worker, doctor, fire-fighter, flight attendant, nurse, pilot, and teacher. These eight occupations were not taken into consideration when collating pupils' responses as the purpose of this second task was to find out the extent of pupils' occupational knowledge without any helping words. A table detailing the number of additional occupations that each pupil from P1 to P6 had written down has been provided in appendix 4-2. The maximum number of occupations that pupils had written down (without any assistance) was 18 occupations. As the occupations from part B could not be considered, the minimum number of additional occupations written down was 0 occupations. The range of additional occupations that pupils knew (without any helping words) was 18 occupations. Pupils' written responses had to be collated based on four possible ranges: between 0 to 4 occupations, between 5 to 9 occupations, between 10 to 14 occupations, and between 15 to 19 occupations. Figure 4-35 below showed the distribution of pupils' responses based on these four ranges.

Figure 4-35
Comparison of Pupils' Additional Occupational Knowledge



The above figure showed a completely different picture from that of figure 4-34. When no helping words were provided, it was seen that most pupils (a total of 73%) – irrespective of educational levels (and thus age) – were either unable to write down any additional occupations or up to a maximum of four additional occupations. Even at the highest range of between 15 to 19 occupations, older pupils were not always the only ones most able to write down many occupations. There was one P1 pupil who was able to write down 17 occupations while no pupil from P2 to P4 was able to write down more than a maximum of 11 occupations. The maximum number of occupations that one P5 pupil could write down was 16 occupations, while the maximum number of occupations that one P6 pupil could write down was 18 occupations.

Table 4-13 below highlighted the mean number of occupations written down by pupils from P1 to P6. It confirmed that when it came to writing additional occupations without any helping words given, there was no clear pattern that upper primary pupils (i.e. those from P4 to P6) were able to write more occupations than younger pupils. The higher means of 4.0 and 4.9 occupations were found only amongst pupils from P5 and P6.

Table 4-13
Mean number of occupations written down for each educational level

			Educational Levels					
			P1	P2	P3	P4	P5	P6
Total	number	of	38	33	57	69	87	143
occupations written down								
Total	number	of pupils by	14	11	23	24	22	29
level								
Mean	number	of	2.7	3.0	2.5	2.9	4.0	4.9
occupations written down								

Appendices 4-3 and 4-4 listed in alphabetical order, the additional occupations written by both lower and upper primary pupils. The common occupations that were written down by pupils from P1 right up to P6 were “police” (or variations like “policeman” and “police officer”), “soldier”, and “taxi driver”. Occupations that were written down by pupils from five out of the six levels were “bus driver” and “scientist”. Other common occupations written down by pupils from four out of the six levels were “director”, “maid”, “postman“, “singer”, “soccer player”, and “waiter/waitress”. Common occupations written down by pupils from three out of the six levels were “actor/actress”, “cobbler”, “fisherman”, “fishmonger”, and “typist”.

There were at least three occupations that were written down only by upper primary pupils (i.e. those from P4 to P6). These were “architect”, “chauffeur”, and “fireman”.

Some of the more unusual occupations written down by pupils included “boss”, “chief”, “clown”, “commander”, “explorer”, “glassblower”, “housewife”, “inventor”, “keymaker”, “magician”, “minister”, “percussionist”, “president”, “storyteller”, “steeplejack, “spy”, “toymaker”, “undertaker”, “upholsterer”, “woodcutter”, and “wrestler”. Pupils also wrote down European occupational terms such as “fishmonger”, “greengrocer” and “fruiterer” to refer to sellers of fish, vegetables and fruit.

Pupils also often miss-spelt occupations such as “architect”, “chauffeur”, “counselor”, and “lifeguard”, and used incorrect terminology like “cooker” when

referring to a “cook” or leaving out “man” from “fisherman”. One of the pupils even wrote “directing manager” instead of “managing director”.

The following table grouped pupils’ written occupations by occupational groupings found in the SSOC (2000), and by educational levels.

Table 4-14
Pupils’ Written Occupations classified by Occupational Groupings and by Educational Levels

Occupation Groups	Description	Educational Levels			Totals
		Lower	Upper	Both	
		Primary Only	Primary Only	LP & UP	
1	Legislators, Senior Officials and Managers	0	7	0	7
2	Professionals	2	21	5	28
3	Associate Professionals	4	12	6	22
4	Clerical Workers	0	1	1	2
5	Service Workers, Shop & Market Sales Workers	2	5	9	16
6	Agricultural & Fishery Workers	0	0	2	2
7	Production Craftsmen & Related Workers	0	7	2	9
8	Plant and Machine Operators & Assemblers	2	3	2	7
9	Cleaners, Labourers, & Related Workers	2	6	1	9
X3	Workers in the Armed Forces	1	3	1	5
	Occupations that have classifications in the SSOC but can fit into 2	1	6	2	9

<i>Occupation Groups</i>	<i>Description</i>	<i>Educational Levels</i>			<i>Totals</i>
		<i>Lower</i>	<i>Upper</i>	<i>Both</i>	
		<i>Primary Only</i>	<i>Primary Only</i>	<i>LP & UP</i>	
	possible occupational groups depending on contextual information				
	Occupations that have classifications in the SSOC but can fit into more than 2 possible occupational groups depending on contextual information (e.g. artist and supervisor)	0	1	1	2
	Occupations that have no classifications in the SSOC	9	17	5	31
	<i>Totals</i>	23	89	37	149

Table 4-14 above showed that the occupational groupings of occupations written only by upper primary pupils differed greatly to the occupational groups of occupations written only by lower primary pupils. For instance, upper primary pupils were the only ones to have written down occupations that can be classified as “Legislators, Senior Officials & Managers”. Examples of such occupations included “businessman”, “chairman”, “manager”, “managing director”, “minister”, “president”, and “shopkeeper”.

Although the above table 4-14 revealed that more upper primary pupils than lower primary pupils were able to write down occupations that the SSOC (2000) classified as “professionals”, it was found that lower primary pupils were also able to write down sophisticated occupations from this occupational groupings. Examples of these occupations were “playwright” and “surgeon”.

The professionals most commonly listed by both lower and upper primary pupils were “accountant”, “actor/actress”, “dancer”, “scientist”, and “singer”.

Table 4-15
Summary of Pupils' Occupational Knowledge

			Educational Levels					
			P1	P2	P3	P4	P5	P6
1. Mean	number	of						
occupations	known							
when pupils	circled		21.6	33.5	34.0	40.0	40.5	43.2
from a given list								
2. Mean	number	of						
occupations	known							
when pupils	wrote		2.7	3.0	2.5	2.9	4.0	4.9
down their responses								
with no given list								
% difference between (1)								
and (2) above			87.5%	91.0%	92.6%	92.8%	90.1%	88.7%

From the above summary table, it can be seen that when pupils were asked to circle known occupations from a given list, their occupational knowledge was about ten times more than when they were asked just to write down as many occupations as they knew on space provided. When it came to writing down their known occupations, upper primary pupils did not necessarily write down more occupations than their lower primary counterpart. In fact, one primary one pupil (from the youngest educational level in the survey sample) was able to write down the second highest number of occupations.

Qualitatively, upper primary pupils also did not necessarily have a monopoly on writing down more sophisticated occupations than their lower primary counterparts. In fact, lower primary pupils were able to demonstrate that they knew some sophisticated occupations (e.g. accountant, playwright, and surgeon). Upper primary pupils were able to write down some unusual occupations like “steeplejack”.

Occupational Preferences

The third task was for pupils to choose five occupations that they would consider doing when they grew up, and provide reasons for their choices. The list of occupations that pupils could make their choices from comprised the eight occupations found in part B (i.e. cleaner, construction worker, doctor, firefighter, flight attendant, nurse, pilot, and teacher), the given list of 48 occupations from which they had to circle those they knew, and the list of additional occupations that they had to write down. The total number of occupations that pupils could make their selection from was 205 occupations. This comprised the eight occupations from part B, 48 occupations from part C, and additional 149 occupations found in Table 4-14 above. This can therefore be taken as a proxy for Gottfredson's "cognitive map of occupations".

Although pupils had a total of 205 occupations from which to choose their five preferred occupations, survey respondents only selected a total of 89 (or 42.8%) occupations that they would consider pursuing when they grew up (see appendix 4-5). In addition, four of the occupations cited as preferences were not part of the list described in the preceding paragraph. If these additional four occupations were added to the list above, then the "cognitive map of occupations" would have increased to 209 occupations. The four occupations were "basketball judge", "olympician", "pop star/celebrity", and "runner".

Of the 89 occupations cited as future occupational preferences, 21 occupations (or 23.6%) were selected only by lower primary pupils, 37 occupations (or 41.6%) were selected only by upper primary pupils, and 31 occupations (or 34.8%) were cited by both lower and upper primary pupils (see table 4-6-1 in appendix 4-6). Table 4-16 below compared the occupational preferences of lower and upper primary pupils by occupational groupings. These occupational groupings were from the SSOC (2000).

Table 4-16
Comparison of Occupational Preferences between Lower and Upper Primary Pupils

<i>Occupation Groups</i>	<i>Description</i>	<i>Lower Primary Pupils¹</i>	<i>Upper Primary Pupils⁴</i>
1	Legislators, Senior Officials and Manager	Manager / Manger (sic) (3x), Shop-keeper	Manager (9x), Shopkeeper / Shop-keeper (2x)
2	Professionals	Art teacher, Author (4X), Dance teacher, Dancer, Dentist (3x) Doctor (18x), Lawyer (6x), Librarian (6x), PE Teacher / Teacher (23x), Principle (sic), Scientist (2x), Singer, Surgeon, Vet / Veterinarian (2x), Vice-principal, Violinist, Writer (3x)	Actress, Architect (3x), Astronomer (2x), Author (12x), Dancer, Dentist, Doctor (24x), Engineer (5x), Judge (4x), Lawyer (21x), Librarian (11x), Pastor, Principal (4x), Researcher, Scientist (6x), Singer (5x), Teacher (29x), Veterinarian (7x), Violinist (2x), Writer (2x)
3	Associate Professionals	Birdkeeper, Nurse (8x), Zookeeper (5x)	Environmentalist, Housing agent, Illustrator, Kindergarten teacher, Nurse

⁴ Numbers in brackets indicate the number of times different pupils wrote this occupation down

Occupation Groups	Description	Lower Primary Pupils¹	Upper Primary Pupils⁴
			(11x), Optician (2x), Referee (5x), Social worker, Umpire, Zookeeper (10x)
4	Clerical Workers		Casher (3x), Receptionist
5	Service Workers, Shop & Market Sales Workers	Barber, Chef (3x), Detective, Florist (3x), Hair dresser, Hawker (2x), Housekeeper, Liveguard (sic), Police / Policeman (14x), Postman (2x)	Babysitter, Barber (2x), Chef (6x), Detective (sic) / Detective (14x), Flight attendant / Stewardess (2x), Florist (7x), CID / Police / Policeman / Policewoman / Traffic police (20x),
6	Agricultural & Fishery Workers		
7	Production Craftsmen & Related Workers	Carpenter, Clobber (sic), Pumbler (sic), Tailor (2x)	Electrician, Mechanic (2x), Tailor,
8	Plant and Machine Operators &	Bus driver, Lorry driver, Taxi driver	Sailor (2x)

Occupation Groups	Description	Lower Primary Pupils¹	Upper Primary Pupils⁴
9 X3000	Assemblers		
	Cleaners, Labourers, & Related Workers		Gardener (2x)
	Workers in the Armed Forces	Air force, Comander (sic), Soldier (sic) / Soldier / Solliger (sic) (3x)	Army officer, Navy, Soldier (3x),
	2 SSOC groupings	Baker (2X), Conductor, Designer, Engineer, Gardener (3x), New repartew (sic), Pilot (2x), Soccer player	Baker (2x), Designer (10x), Engineer (5x), Footballer / Soccer player (5x), Inspector (3x), Pilot (4x), Reporter (6x), Salesman, Supervisor
	More than 2 SSOC groupings	Artist (12x), Firefighter / Fireman / Firewoman (6x),	Artist (13x), Firefighter / Fireman (5x),
	No classifications in the SSOC	Butcher, Fruiterer, Housewife	Basketball judge, Celebrity, Chief, Explorer, Olympician, Pop star, President, Professor, Runner, Spy,

<i>Occupation Groups</i>	<i>Description</i>	<i>Lower Primary Pupils¹</i>	<i>Upper Primary Pupils⁴</i>
			Story teller

From table 4-16, it was seen that there was only one occupational group where both pupils from lower and upper primary levels did not have any occupational preferences. This was group 6 (“agricultural & fishery workers”). There were two upper-primary-pupils-only occupational groupings. These were groups 4 (“clerical workers”) and 9 (“cleaners, labourers, and related workers”).

It was interesting to observe that both lower and upper primary pupils preferred identical occupations that were classified in group 1 (“Legislators, Senior Officials and Manager”). These occupations were “manager” and “shopkeeper”. For occupational group 2 (“professional”), lower primary pupils tended to be more specific in their occupational preferences. For example, lower primary pupils preferred to become an “art teacher”, “dance teacher” or “PE teacher”. In contrast, upper primary pupils simply preferred to become a “teacher”. Although both younger and older pupils had occupations preferences in groups 7 (“Production Craftsmen & Related Workers”) and 8 (“Plant and Machine Operators & Assemblers”), their specific preferences were different. Younger pupils preferred occupations like “carpenter”, “cobbler”, and “plumber” while older pupils preferred occupations like “electrician” and “mechanic” for group 7. For group 8, younger pupils’ specific preferences focused on driving different vehicles (e.g. “bus driver”, “lorry driver”, and “taxi driver”). Older pupils, on the other hand, preferred being “sailors”.

Amongst the preferred occupations cited by pupils from the lower and upper levels, upper primary pupils had more occupations that could not be classified into occupational groupings found in the SSOC 2000. Examples of these included fantasy-type occupations like “celebrity”, “chief”, “explorer”, “Olympician”, “pop star”, “President”, “runner”, “spy”, and “story teller”. For non-classifiable occupations, lower primary pupils tended to prefer occupations that were rooted in reality. Examples were “butcher”, “fruiterer”, and “housewife”.

Table 4-16 above indicated that upper primary pupils cited more occupations that were classified as “professionals” and “associate professionals” compared to their lower primary counterparts. These occupational groupings also require higher skill levels compared to the other occupational groupings. The occupational grouping where lower primary pupils preferred more occupations was group 8 “Plant and Machine Operators & Assemblers”.

Table 4-16 above also revealed that when it came to occupations in the Armed Forces, lower primary pupils preferred the Army (as represented by “soldier”) and the Air Force. One lower primary pupil also indicated that he/she would like to be a commander in the Army so that he/she could “command soldier”. In contrast upper primary pupils preferred the Army and the Navy, and were able to cite more formal job titles (for e.g. “Army officer” compared to “soldier”).

Table 4-17

Comparison of Occupational Preferences between Female and Male Pupils

<i>Occupation Groups</i>	<i>Descriptions</i>	<i>Female Pupils⁵</i>	<i>Male Pupils⁵</i>
1	Legislators, Senior Officials and Manager	Manager (4x), Shopkeeper	Manager (8x), Shopkeeper
2	Professionals	Actress, Art teacher, Astronomer, Author (11x), Dance Teacher, Dancer (2x), Dentist (2x), Doctor (28x), Judge, Lawyer (20x), Librarian (11x), Pastor,	Architect (3x), Astronomer, Author (5x), Dentist (2x), Doctor (14x), Judge (3x), Lawyer (7x), Librarian (6x), Principal (3x), Researcher, Scientist (4x),

⁵ Numbers in brackets indicate the number of times different pupils wrote this occupation down

Occupation Groups	Descriptions	Female Pupils⁵	Male Pupils⁵
		Principal (2x), Scientist (4x), Singer (5x), Teacher (36x), Vet / Veterinarian (7x), Vice-Principal, Violinist (3x), Writer (3x)	Singer, Surgeon, Teacher / PE teacher (16x), Veterinarian (2x), Writer (2x)
3	Associate Professionals	Environmentalist, Kindergarten teacher, Nurse (19x), Optician, Social Worker, Zookeeper (6x)	Birdkeeper, Housing agent, Illustrator, Optician, Referee (5x), Umpire, Zookeeper (9x)
4	Clerical Workers	Cashier (3x), Receptionist	
5	Service Workers, Shop & Market Sales Workers	Baby-sitter, Barber, Chef (3x), Detective (7x), Flight attendant / stewardess, Florist (10x), Hairdresser, Hawker, Housekeeper, Police / policeman / policewoman	Barber (2x), Chef (6x), Detective (9x), Hawker, Liveguard (sic), Police / Policeman / CID / Traffic police (25x), Postman (2x)

Occupation Groups	Descriptions	Female Pupils⁵	Male Pupils⁵
		(9x)	
6	Agricultural & Fishery Workers		
7	Production Craftsmen & Related Workers	Tailor (2x)	Carpenter, Cobbler, Electrician, Mechanic (2x), Plumber, Tailor
8	Plant and Machine Operators & Assemblers	Lorry driver	Bus driver, Sailor (2x), Taxi-driver
9	Cleaners, Labourers, & Related Workers		Gardener
X3000	Workers in the Armed Forces	Navy, Soldier	Airforce, Army officer, Comander (sic), Soldier (5x)
	2 SSOC groupings	Baker (2x), Conductor, Designer (7x), Engineer, Gardener (4x), Reporter (3x), Soccer-player	Baker (2x), Designer (4x), Engineer (5x), Inspector (3x), Pilot (6x), Reporter / News reporter (4x), Salesman, Soccer player / Footballer (5x), Supervisos (sic)

Occupation Groups	Descriptions	Female Pupils⁵	Male Pupils⁵
	More than 2 SSOC groupings	Artist (13x), Firefighter / Firewoman (2x)	Artist (12x), Fire fighter / fireman (9x), Inspector (3x),
	No classifications in the SSOC	Butcher, Chief, Housewife	Basketball judge, Celebrity, Explorer (2x), Fruiterer, Olympician, Pop star, President, Professor, Runner, Spy, Story teller

Table 4-17 above compared the occupational preferences of female and male pupils by occupational groupings. Like the comparisons between lower and upper primary pupils, both girls and boys did not have any occupational preferences in group 6 – “agricultural & fishery workers”.

Amongst all the occupations selected by pupils in the survey sample, there were two occupational groupings that reflected boys-only and girls-only selections. These occupational groups were 9 (“cleaners, labourers & related workers”) and 4 (“clerical workers”) respectively. The occupations that only girls had selected were “cashier” and “receptionist”. The only occupation that boys had selected was “gardener”.

Amongst all the occupational groupings, it was found that girls had greater occupational preferences in groups 2 and 5. For group 2, girls had 19 occupational preferences while boys only had 16. There were also certain occupations that were preferred by boys only and not girls, and vice versa. For example, girls chose occupations like “art teacher”, “dance teacher”, “dancer”,

“pastor”, and “violinist” from group 2 while boys alone preferred “architect” and “researcher”.

Similarly for group 5, girls had 10 preferences while boys only had 7. The occupations that only boys preferred were “lifeguard” and “postman while occupations that were girls-only preferences were “babysitter”, “flight attendant / stewardess”, “florist”, “hairstylist”, and “housekeeper”. Although both boys and girls did have “police” as occupational preferences, the boys were able to indicate the specific divisions that they preferred such as “CID” and “traffic police”.

For occupational groups 7 and 8, there were more boys-only occupational preferences than girls-only preferences. The occupation selected by girls only was “lorry driver” while boys selected “bus driver”, “sailor” and “taxi driver”. It was interesting that no boy wanted to be a “lorry driver”.

It was observed that both boys and girls had occupational preferences that did not have any classifications in SSOC (2000). Amongst them were those occupations where the nomenclature used was very uncommon in Singapore: for example, “butcher” and “fruiterer” to refer to the selling of meat and fruit respectively. Some of the occupations appeared to deal more with roles such as “housewife”, “celebrity”, “president”, “professor”, “spy”, and “story teller”. It was also observed that boys’ non-classifiable occupations tended to be titles they had made-up (e.g. “basketball judge”, “olympian”). No one chose any occupations from group 6 – agricultural and fishery workers.

In summary, the number of occupations selected by pupils was far less than what was available. In addition, it was found that girls’ selections tended to be more from the higher-skilled occupational groups than boys’ selections. There was at least one occupational group (“Agricultural & Fishery Workers”) where no one had chosen any occupations from. This might not be unexpected given Singapore’s urban landscape. There was also one occupation group that was gender-biased and where only girls cited their occupational preferences.

Reasons Supporting Occupational Preferences

The themes that emerged from the reasons that pupils had provided for their occupational preferences were as follows (quotes selected to illustrate particular themes were those typically cited by pupils from all levels):

1. Personal interests: this was the most pervasive theme and reflected pupils' liking for the major work tasks of their occupational preferences. Pupils tended to use the words "like" and "love" when describing this area. For example, *"I love to draw", "I like to help people to get well" (sic), "I love flowering plants", "I like to do experiments", "I like to argue with people", "I like to read book", and "I like animals"*. Older pupils often were able to elaborate beyond just citing their liking for the primary activity. For example, one upper primary pupil who had chosen "artist" as an occupational preference wrote *"drawing is interesting and fun. Sometimes I spend time drawing new creatures and end up looking cute"*. Another wrote *"so that I can create designs"*.
2. Personal abilities: this was another pervasive theme and referred to pupils' recognition of their abilities and how competency was related to the occupation. Words like "can" and "able" were used to reflect pupils' abilities in the core work tasks of the occupation. Examples included *"I draw quite well"*, and *"I always get good grade (sic) for my art pieces"* for the occupation of an "artist". *"I had the skills to play soccer"* for becoming a "soccer player or footballer", and *"I can create liquid that are helpful to us"* to become a "scientist".
3. Altruism: this was an unusual theme that emerged and referred to an unselfish concern for the good of others. This theme primarily emerged in caring professions like "doctor" or "nurse" – *"we can help save other people's lives"*, *"if my family members are sick, I can cure them"*, *"I want to save people from sickness"*, *"I can help many people who are sick"*, *"to help all the sick and poor people"*, and *"whenever something like SARS virus I could help the patient get well"*. Other examples of altruistic motives were also found for lawyers – *"I want to find out who is innocent and who is guilty when crime happens"*, *"I want to fight for injustice for the innocent person"*, *"I can bring justice for the innocent"*,

“can talk things out and help people”, “so that I can judge what is good and what is bad”, and “uphold justice”. An altruistic reason was also used for becoming an author – “I want every Singaporean to read books and improve their language”.

4. **Material gains:** this theme surprisingly did not emerge clearly amongst many pupils. It referred to the primary purpose of getting rich or making money. This theme was often related to occupations found in the higher-skilled professions such as “doctor”, “engineer”, “lawyer” and/or “vet”. For example, supporting reasons for “doctor” – *“can earn more money”, “high wages, save people”; for “engineer” – “to earn money”, “high wages”; for “lawyer” – “high wages”, “I can own a lot of money”, “so I can make more money”, and “I choose lawyer cause a lawyer make a better future for myself”; and for “vet” – “can earn a lot of money”.* The only occupation where the theme of material gain was particularly strong was “manager” – *“I like to earn money”, “I can earn lots of money”, “I can gain money”, “I get much money and give some to my mother”, “I would become rich”, and “I can earn a lot of money”.* It was interesting to note that for at least one pupil, the purpose of material gain was not a self-centred one but one that would benefit others. In this pupil’s case, it was for his/her mother.
5. **Fame:** this theme referred to the achievement of glory and adulation from others, and emerged fairly strongly for occupations like “artist”, “author”, and “violinist”. Examples of supporting reasons included *“so that I will be popular”, “I want to impress other people with my artistic talents”, “I can attract alot of people to buying art pieces”, “I can create my own stories for people to enjoy”, “very famous”, “I want to joint (sic) the Singapore Malay Orchestra and be on television like my violin teacher”, and “I can perform stage”.* This theme was even more apparent for the occupation “pop star / celebrity” – *“I would like to become famous”, and “I like to sing and act not than I want to heap praises on myself. I think I can be a celebrity one day”.* Perhaps the media influence of shows like *American Idol* and *Fame* may provide fame as a legitimate reason for an occupational choice.

6. Parental influence: this refers to pupils considering an occupation because of parents' suggestion or because their parents are in the occupation. This was found for occupations like "doctor" – *"my mother says I must become one"*, "engineer" – *"my father is an engineer"*, "manager" – *"to help to run my father's company"*, and "teacher" – *"my mother likes me to be a teacher"*.
7. Power: this theme referred to the sense of control and power that pupils gained from being in the occupation or using equipment associated with the occupation. This was seen in occupations like "principal" – *"everything will be under my control"*, "policeman" – *"I can shoot the theifs (sic)"* and *"I would be holding a real gun and people would not dare to come close"*. This theme was repeated again for wanting to join the "Air Force" as *"the plan (sic) is very powerful"*.
8. Occupational Roles: As defined in chapter two, Super's life space denotes the "constellation of social positions occupied and roles enacted by an individual" (Super, Savickas, & Super, 1996, p.128). For instance, it was quite apparent that lower primary pupils had a tacit understanding that nurses played supporting roles to doctors. This could be seen through the following reasons provided for nurse: *"I want to help the doctor"*, *"I enjoy helping doctors"*, *"I like to help doctor"*, *"help doctor who help sick person"*, and *"so that I can help the doctors"*. The emphasis on the supporting role did not come across as clearly for upper primary pupils: only three out of 11 reasons cited showed the nurse's role as helping the doctor. Five out of eight reasons cited by lower primary pupils referred to the nurse's role as helping the doctor.

In summary, there were a total of eight themes that were culled from the supporting reasons that pupils provided for their occupational selections. The two strongest themes focused on pupils' personal interests and abilities. The most unusual theme was on "altruism". The emergence of "altruism" was unusual because it was pupils from both lower and upper primary who cited such reasons when choosing occupations like "doctor" and "nurse". This contrasted sharply with Kohlberg's three-stage theory of moral development,

where longitudinal research on Kohlberg’s stages reflected that internalisation of moral values generally began only in midadolescence (Beck, 1996, p475).

Occupational Rejection

The fourth and final task in part C was for pupils to choose another five occupations but this time, these were occupations that they would not consider doing when they grew up. Again, they had to give reasons for their non-preference. Pupils could choose their non-preferred occupations from the total list of occupations described earlier.

Although pupils were provided with up to five options, not many were able to choose that many non-preferred occupations. As a result, the total number of occupations that pupils rejected for the future was 76 or 36.5% (see appendix 4-5). This was lesser than the number of occupations selected as preferences. Of these 76 non-preferred occupations, only one occupation – “model” - had not been part of the list described earlier.

Of the 76 occupations that pupils rejected, 8 occupations (or 10.5%) were rejected only by lower primary pupils, 25 occupations (or 32.9%) were rejected only by upper primary pupils, and the remaining 43 occupations (or 56.6%) were rejected by both lower and upper primary pupils (see Table 4-7-1 in appendix 4-7).

Table 4-18
Comparison of Occupational Rejections between Lower and Upper Primary Pupils

<i>Occupational Groupings</i>	<i>Description</i>	<i>Lower Primary Pupils⁶</i>	<i>Upper Primary Pupils⁶</i>
1	Legislators, Senior Officials and Manager	Manager (2x), Shopkeeper	Manager, Shopkeeper
2	Professionals	Actor, Author, Dentist (4x), Doctor (3x),	Actress (2x), Author (5x), Dancer, Dentist

⁶ Numbers in brackets indicate the number of times different pupils write this occupation down

Occupational Groupings	Description	Lower Primary Pupils⁶	Upper Primary Pupils⁶
		Engineer, Lawyer, Librarian (3x), Principal (2x), Teacher (6x), Vice principal, Writer (2x)	(11x), Doctor (3x), Engineer (4x), Judge (4x), Lawyer (2x), Librarian (4x), Principal (3x), Singer, Teacher (6x), Vice-principal, Writer (4x)
3	Associate Professionals	Optician (2x), Referee, Zookeeper (7x)	Jockey (2x), Nurse (2x), Pilot (4x), Referee (3x), Technician, Umpire, Wrestler, Zookeeper (12x)
4	Clerical Workers	Cashier (2x), Telephone operator (2x),	Cashier, Clerk (5x), Telephone operator (2x),
5	Service Workers, Shop & Market Sales Workers	Barber (3x), Chef (3x), Florist (2x), Hawker, Housekeeper (3x), Model, Police / Policeman (7x), Postman (2x),	Barber (4x), Bartender (8x), Chef (3x), Detective (2x), Flight attendant (2x), Florist (4x), Hawker (7x), Housekeeper

Occupational Groupings	Description	Lower Primary Pupils⁶	Upper Primary Pupils⁶
		Security guard (2x),	(2x), Newsvendor (3x), Police / Policeman (3x), Postman, Guard / Security guard (8x),
6	Agricultural & Fishery Workers		
7	Production Craftsmen & Related Workers	Carpenter (4x), Electrician, Mechanic (3x), Newsvendor, Plumber, Tailor (3x),	Carpenter (2x), Electrician (5x), Mechanic (3x), Plumber (4x), Tailor (5x),
8	Plant and Machine Operators & Assemblers	Bus driver (2x), Lorry driver (3x), Sailor (3x), Taxi driver (4x), Toymaker,	Lorry driver (9x), Sailor (14x), Taxi driver (3x),
9	Cleaners, Labourers, & Related Workers	Cleaner (4x), Construction worker, Servant (6x),	Cleaner (16x), Constructor (sic) / Construction worker (7x), Kitchen assistant (2x), Maid (2x), Servant / Servent (sic) (23x),

<i>Occupational Groupings</i>	<i>Description</i>	<i>Lower Primary Pupils⁶</i>	<i>Upper Primary Pupils⁶</i>
X3000			Sweeper, Toilet Cleaner (2x), Usher,
	Workers in the Armed Forces	Soldier	
	2 SSOC groupings	Baker (3x), Gardener (3x), Reporter (4x)	Baker (2x), Designer (2x), Gardener (8x), Inspector, Reporter (7x), Soccer player,
	More than 2 SSOC groupings	Artist (5x), Firefighter / Fireman (8x)	Artist (7x), Firefighter / Fireman (8x)
	No classifications in the SSOC	Butcher (3x), Explorer, Fishmonger, Fruit seller, Greengrocer,	Bad guy, Burgalar (sic), Butcher (12x), Conman, Drug seller, Gambler, Housewife (2x), Robber, Thief,

Table 4-18 above listed the occupations, classified by occupational groupings, lower and upper primary pupils rejected. Both lower and upper primary pupils did not list any rejected occupations in occupational group 6 – “agricultural and fishery workers”. The only occupational grouping where only

lower primary pupils listed rejected occupations was “workers in the Armed Forces”.

Upper primary pupils also listed more rejected occupations in occupational groupings 2 (“professionals”) and 3 (“associate professionals”). Examples of occupations that only upper primary pupils rejected included “judge”, “principal”, and “singer”. In occupational grouping 3 “associate professionals”, both lower and upper primary pupils rejected different occupations except for “referee” and “zookeeper”. The only occupation rejected by lower primary pupils was “optician”. Upper primary pupils rejected “jockey”, “nurse”, “pilot”, “technician”, “umpire”, and “wrestler”.

Only upper primary pupils rejected non-classifiable occupations that were either illegal or immoral. Examples included “bad guy”, “burglar”, “conman”, “drug seller”, “gambler”, “robber” and “thief”. Non-classifiable occupations rejected by lower primary pupils were “explorer”, “fishmonger”, “fruit seller”, and “greengrocer”.

Table 4-19

Comparisons of Occupational Rejections by Occupation Groups and Gender

<i>Occupation Groups</i>	<i>Description</i>	<i>Occupational Rejections by Girls⁷</i>	<i>Occupational Rejections by Boys⁷</i>
1	Legislators, Senior Officials and Manager		Shopkeeper (2x)
2	Professionals	Author (2x), Dentist (9x), Doctor, Judge (2x), Lawyer, Librarian (4x), Principal (2x), Singer, Teacher (4x), Writer (3x)	Author (4x), Dancer, Dentist (6x), Doctor (5x), Judge (2x), Lawyer (2x), Librarian (3x), Principal (3x), Teacher (8x), Vice-principal (2x), Writer (3x)

⁷ Numbers in brackets indicate the number of times different pupils wrote this occupation down

<i>Occupation Groups</i>	<i>Description</i>	<i>Occupational Rejections by Girls⁷</i>	<i>Occupational Rejections by Boys⁷</i>
3	Associate Professionals	Jockey, Nurse (2x), Optician, Referee, Zookeeper (12x)	Jockey, Optician, Referee (3x), Technician, Umpire, Wrestler, Zookeeper (7x)
4	Clerical Workers	Cashier (2x), Clerk (4x), Telephone operator (4x)	Cashier, Clerk
5	Service Workers, Shop & Market Sales Workers	Barber (5x), Bartender (2x), Chef (4x), Florist (3x), Hawker (4x), Housekeeper, Model, Newsvendor, Police (5x), Postman, Security guard (5x)	Barber (2x), Bar- tender (7x), Chef (2x), Detective, Flight attendant (2x), Florist (3x), Hawker (4x), Housekeeper (4x), Newsvendor (3x), Police / policeman (5x), Postman (2x), Security guard / guard (5x)
6	Agricultural & Fishery Workers		
7	Production Craftsmen & Related Workers	Carpenter (5x), Electrician (4x),	Carpenter, Electrician(2x),

Occupation Groups	Description	Occupational Rejections by Girls⁷	Occupational Rejections by Boys⁷
		Mechanic (3x), Plumber, Tailor (5x)	Mechanic (2x), Plumber (4x), Tailor (3x)
8	Plant and Machine Operators & Assemblers	Bus driver, Lorry driver (6x), Sailor (11x), Taxi driver (4x)	Bus driver, Lorry driver (6x), Sailor (6x), Taxi driver (3x)
9	Cleaners, Labourers, & Related Workers	Cleaner / Toilet cleaner (10x), Construction worker (4x), Kitchen assistant, Maid (2x), Servant (20x), Usher	Cleaner / Toilet cleaner (12x), Construction worker (4x), Kitchen assistant, Servant (9x), Sweeper
X3000	Workers in the Armed Forces		Soldier
	2 SSOC groupings	Actress (2x), Designer, Engineer (4x), Reporter (7x), Pilot (2x), Gardener (7x), Baker (2x)	Bad guy, Burglar, Butcher (7x), Conman, Drug seller, Explorer, Gambler, Robber, Thief, Toymaker
	More than 2 SSOC groupings	Artist (8x), Firefighter / fireman (6x),	Artist (4x), Firefighter / fireman (8x),

<i>Occupation Groups</i>	<i>Description</i>	<i>Occupational Rejections by Girls⁷</i>	<i>Occupational Rejections by Boys⁷</i>
		Inspector, Manager	Manager (2x)
	No classifications in the SSOC	Butcher (8x), Fishmonger, Fruit seller, Greengrocer, Housewife (2x)	Bad guy, Burglar, Butcher (7x), Conman, Drug seller, Explorer, Gambler, Robber, Thief, Toymaker

Table 4-19 above showed the occupations, by occupational groupings, rejected by boys and girls. It was seen that the occupational groupings that were only rejected by boys were groups 1 and X3000. The occupations were “shopkeeper” and “soldier”. Girls did not specify any occupations that they would reject for these occupational groupings. The only occupational grouping where no male nor female pupils listed any rejected occupations was group 6 (“agricultural and fishery workers”).

Of the occupations rejected by both boys and girls, there were a number that did not have any classification in the SSOC (2000). Both boys and girls gave different occupations that did not have any classification. For girls, this lack of classification was due to the nomenclature used that was more common in Britain than in Singapore. Examples included “butcher”, “fishmonger”, “fruit seller”, and “greengrocer”. The occupations rejected by boys did not have any classification because either the terms used did not refer to occupations (e.g. “bad guy”) or they referred to activities that were illegal and immoral. Examples for this included “burglar”, “conman”, “drug seller”, “gambler”, and “thief”. As noted in table 4-19 above, it was upper primary boys who listed these illegal and immoral occupations.

Generally across all occupational groupings, both boys and girls rejected similar occupations. There were minor exceptions within certain groups. For example, in group 3, boys rejected more jobs than girls. The occupation that girls rejected was "nurse" while boys rejected "technician", "umpire" and "wrestler". For groups 4, 5, and 9, it was observed that only girls rejected "telephone operator", "model", and "maid".

In table 4-8-1 in appendix 4-8, comparisons were done between girls' occupational selections and rejections, and between boys' occupational selections and rejections. In spite of considerable overlaps between girls' selected and rejected occupations, it was observed that there were 25 occupations that girls had never selected at all yet rejected. Some examples of these rejects included "bartender", "cleaner/toilet cleaner", "construction worker", "kitchen assistant", "maid", "model", "security guard", "servant", and "usher". (The full list is highlighted in appendix 4-8).

The total number of occupations that boys had never selected yet rejected was 27. Some examples of these rejected occupations were "actor", "bad guy", "bartender", "dancer", "flight attendant", "florist", "housekeeper", "lorry driver", "sweeper", "toymaker", and "wrestler". The full list of only boys' rejected occupation is highlighted in appendix 4-8.

Comparing the boys-only and girls-only rejected occupations, it was noted that the commonly rejected occupations were "bartender", "cleaner", "construction worker", "jockey", "kitchen assistant", "newsvendor", "security guard", and "servant".

The supporting reasons for the above occupations rejected by both boys and girls, as well as boys-only and girls-only rejects would be examined in detail in the following section subtitled "Supporting Reasons for Occupational Rejection".

Supporting Reasons for Occupational Rejection

It was observed that some of the occupations rejected only by boys were occupations that girls did not reject and had even selected as possible occupational preferences. These occupations were "dancer", "flight attendant", and "housekeeper". For girls, however, the situation was different. Besides

rejecting the same occupations that boys did, girls also had additional occupations that they rejected, which were never selected at all in the first place. These occupations included “fishmonger”, “fruit seller”, “greengrocer”, “model”, and “telephone operator”. The reasons for rejection of these occupations by boys and girls would be examined in this section, and the supporting reasons for the occupations that both boys and girls rejected have been listed in Appendix 4-9.

The variety of reasons pupils provided for rejecting the occupations included the following (the quotations used to illustrate each reason were those typically mentioned by pupils from all levels):

- a. Work environment – *“I hate being in the bar, I hate bars”* (for “bartender”). *“Very smelly and dirty”, “I would not want to wash toilet bowls”, “I hate toilets”, “I don’t like dirty place”, “I don’t like cleaning toilets”, and “I do not want to clean dirty places”* (for “cleaner”). It can be seen that many pupils used the words “dirty” and “toilet” to reflect their personal aversion associated with the work environment (which they perceive as primarily toilets) and the belief that these places tended to be dirty and unhygienic. For “construction worker” it was being outdoors - *“I don’t like to stay under the sun”*; and for “clerk”, it was being indoors - *“I do not like at the office”*
- b. Working hours – this was primarily associated with the work of security guards: *“I need to work until midnight”, and “I don’t want to sleep late”*.
- c. Work tasks and roles – for “construction worker”, pupils’ dislike for manual work was implied in *“it will make me dirty”,* and the *“work to much”* (sic). For newsvendor, it was *“I always have to give newspapers to every house”, and “I do not want to be in a street selling newspaper”*. For “kitchen assistant” and “servant”, the reasons were *“I don’t know how to cook”, “I always have to serve food”, “I don’t like to serve food”* respectively. It was interesting to note that the girls’ rejected occupations – “fishmonger” and “greengrocer” – were more commonly found in Britain but not listed in the SSOC (2000). The reasons offered for rejecting these occupations (*“I don’t want to sell fish / vegetables”*) were a lack of motivation related to primary work task of the occupation – selling produce. The occupation “model” was never included in the list of known occupations (see earlier paragraphs of part C above) but

was introduced as one of the occupations that would be rejected. The reason offered again related to the perceived primary work role – “I don’t like to go up on stage”.

- d. Lack of material gains: this was seen for cleaner, construction worker, and newsvendor. Supporting reasons included *“low wages”*, *“I earn little money”* (for “cleaner”); *“the salary is low”* (“construction worker”); and *“it does not have a high salary”* (for newsvendor). Pupils rejected becoming a “clerk” as it was perceived that *“the salary was not enough for the family”*, *“I would not get high allowance”* and *“I may not be able to support my family”*.
- e. Lack of prestige – it was interesting to note that two of the rejected occupations were “cleaner” and “construction worker”, which were used in part B for pupils to determine their status and prestige. Although the findings in part B indicated that majority of pupils felt that both these jobs were important, pupils’ total rejection of these occupations (i.e. no one had chosen these occupations and instead rejected them) seem to support the lack of status and prestige associated with these occupations. This was further supported with the following reasons: *“it is not a respectable job”*, *“it is an embarrassing (sic) job to do as the rating of the job is very very low”*, and *“I do not like being insulted, being a cleaner”*. The reason *“my relative might saw me cleaning toilet and say bad words about me”* (sic) further emphasised the lack of prestige through the fear of having significant others make derogatory remarks about working as a cleaner. Only one upper primary pupil felt that cleaners were jobs to be done by uneducated or lowly educated people: *“we study hard and we could find another job than cleaner”*. The lack of status associated with being a “kitchen assistant” was well-summed up in *“I would rather be a chef”*. Sweeper – *“I do not like sweeping floor in public”*.
- f. Physical safety - *“Fights are most likely to break out in bars”* (for bartender). This emphasis on safety was also seen for “construction worker”, “jockey”, and “security guard”: *“it was very dangerous for me to work as a construction worker”*, and *“it is dangerous”* (for construction worker); *“sometimes I can get hurt and I don’t like to be hurt in anyway”* (jockey); and *“I don’t want to get shoot (sic)”* (for security guard). For “servant”, *“could be*

tortured (sic) by master, *“a servant gets hit by his/her master/mistress”*, and *“I would be treated like a slave and I don't like to live torturing life”*. A lower primary girl rejected becoming a “telephone operator” because *“I am scared of wire”*. This young girl appeared to still retain the misguided traditional image of telephone operators pulling and pushing in wires to connect callers.

- g. moral/religious and ethnic reasons – *“Mala y cannot touch any alcoholic drinks”*, *“I am god's child and I do not want to be a drunkard”*, and *“It's not good”*.
- h. Misguided associations – One pupil appeared to believe that by being a “cleaner”, she would become physically dirty by association – *“I don't want to be dirty”*. Another pupil even hinted to an aversion of having to “correct” other people's anti-social behaviour: *“people like to litter, spit and I will have to clean it up if I was a cleaner”*.
- i. A sense of powerless and being under others' control – this theme emerged very strongly for “servant”. Some reasons have included *“I do not like to be ordered around”*, *“I do not want to be like a dog”*. *“I don't like to be ordered around”*, *“I do not want to be commanded”*, *“I don't want to get ordered by someone”*, *“I don't want to be bossed around”*, *“I do not want to be told to do things for another person”*, *“I do not like to serve people”*, *“I don't want to work for others”*, and *“I would have to serve rich people”*.
- j. Inappropriate sextype – one female noted that she would not be a construction worker because *“women are weak in construction”*. Other occupations where the reasons were due to pupils feeling that the work was inappropriate for one' gender were “dancer” and “flight attendant”. Both these occupations were rejected by boys and their reasons were *“dancing is for girls”* and *“a flight attendant is usually women”*.
- k. Boredom – this referred to a perceived sense of *ennui* related to occupations such as “clerk”(“*boring job*”) and “jockey” (“*very boring*”). No elaboration, however, was provided as to what aspect of the occupation made it boring.

One final observation about the occupations that only boys had rejected was those that were either illegal and/or immoral. The supporting reasons boys provided for their rejects included: “conman” – *“I will not cheat anyone”*; “drug seller” – *“I will not make others ill”*; “gambler” – *“I should not gamble with*

gangsters", and "robber/burglar/thief/bad guy" – "I will not rob anyone for money", "I will not burglar (sic) any house", "when I become thief the police will catch me", and "bad guy were (sic) do bad thing". It was interesting to note that all these four illegal and morally questionable occupations were listed only by one P6 boy. None of the lower primary pupils or any girl even considered these activities as occupations at all.

In summary, it was seen that occupations were rejected either because the work environment and tasks were unsuitable, and/or the occupation was perceived to lack material gain and thus, prestige and status. More boys than girls felt that occupations were unsuitable for their gender.

Free-response Composition

The purpose of the free-response composition of the research project was to discover elaborations related to the themes suggested by pupils' reasons for their occupational preferences.

Table 4-10-1 (see appendix 4-10) compared the occupations written about by lower primary boys and girls with upper primary boys and girls. Lower primary pupils were able to write about a total of 20 occupations. In contrast, upper primary pupils were able to write about a total of 35 occupations. The most common occupations cited across all groups were "doctor" and "scientist". "Teacher" was popular with all groups except for lower primary boys, where no one wrote about wanting to become a teacher.

Many lower primary pupils only wrote about one occupation while many upper primary pupils, tended to write about more than one occupation. Some of the more popular combinations included "teacher-doctor", "teacher-nurse", "teacher-lawyer", "doctor-engineer", and "doctor-nurse". Other combinations included "brain surgeon – lawyer", "doctor – soccer player", "manager – judge – famous footballer", "teacher-electrician", "scientist-environmentalist", and "teacher-doctor-policewoman".

The popular combinations appear logical as teachers, doctors, nurses, and lawyers have as their focus "helping people". The theme of "altruism" as observed earlier has been given even more elaboration when pupils write about these occupations. For example, reasons for wanting to be a doctor include:

"I want to help the patients; if I have a choice I would help the patients that have kidney problems; my mother once told me that people who have kidney problems are all very sad; even if they are rich, they will soon spent all their money on the bills; they only shared a wish that they will be healthy" (P3 girl)

Because I want to help all sick people and find vaccines that can fully cure people with diseases...doctors are very important people (P4 girl)

I want to be a doctor because I wanted to treat my mother who is suffering from blood disease; I also wanted to treat my other family member who are suffering from some illnesses; maybe that I can make new medicine which can cure any illnesses; I hope that my dream will come true. (P5 girl)

I would like to go to places where doctors are needed like in some part of Myanmar; there are many people dying because there are no medicine or doctors. (P5 Myanmar girl)

Even the attraction of earning much money whether as a doctor or lawyer is related to altruism as some pupils wanted the money to help out their family circumstances:

Because I want to cure people and make lots of money to give my parents. (P2 Chinese girl)

Because I can earn more money for my family (sic) because my family (sic) is very poor; so I must earn more money for me family (sic); and I must work more hard for me test and work; and I will earn more money. (P3 girl)

I hope to be a doctor when I have a high education and grown up to support my family. (P4 Malay girl)

Firstly I want to be a lawyer where I can earn more money for living... when my dream became reality; I will help my mother by paying the bills or pay my sister tuition fees; I will feel great if my dream came true and if I can help my family members. (P6 Malay girl)

In the free-response composition, only a few pupils alluded to factors that influenced their occupational choices. These factors that influenced pupils' occupational choices included the books they read, significant others like family members and teachers, and famous people, especially if pupils were thinking of becoming a professional sports person. The following would provide a flavour of these factors:

"I read detective stories a lot...I also love mystery books...detective and mystery books are very exciting...I also want to be the famous detective like Sherlock Holmes...I like to read Sherlock Holmes books...also like to play mystery games...you have to get to the bottom of the mystery to solve the mystery...I also like to go one place to another to collect detective and mystery books...I also like to listen to detective and mystery stories...one day, I am going to be a good and a helpful detective". (P4 Malay boy).

"I aspire to be a lawyer ...I have seen many lawyer shows on tv, and and some of them help the bad people or bribe people; I think that they are very despicable; if the evil people win, then what r lawyers for?" (P6 Chinese girl)

"One of my father's friend is a child's speclist (sic)...when I saw him the first time he was a very rich mas (sic)...he had two to three cars and a banglow...I thought I could be one man like him ... I write 'I want to eb a child's speclist' on papper and sticked it in my room...I see the papper very bay and told myself 'I want to be a child's speclist'". (P4 Indian boy)

"When my sister went to Cambridge to study science, I wanted to be like her too; after three years, she got her Phd; by then I was 9 year. I wanted to go to the best secondary school; best JC and best university. I wanted to go Cambridge to study like her; ... my father told me that if I were to be a mathematition (sic) I will not earn a lot of money; he thinks that study is not important he said that

many people did not even study but he can open a company and be the richest man in the universe; he also said that if you studied very well, but cannot use it, you are wasting your time ... last year I went to England to visit my sister; I went to Cambridge schools to look around; I like Cambridge now even better; I wished that I can be the best mathematician and I will never change my mind". (P5 Chinese boy. Even though it appeared that the boy's father was trying to dissuade him in pursuing his interest in Mathematics, he was more influenced by his older sister than his father.)

When I grow up I want to be a soccer player because I want to be famous...first when I start my job I want to play for Singapore...then move to england to play ... after every season I play I will come back to Singapore if I play for england...I want to play like David Beckham ... I wish all that I write here and wish for will come through...I want to be famous like David Beckham so I will become famous and score a lot of goals and win the golden boot like van nisttrooy (sic). (P4 Indian boy).

My favourite athlete (sic) is Michael Jordan; I like him because he is a very fast runner and has long legs to help him run fast. (P5 boy who would like to become a professional athlete or a teacher)

Parents could both persuade and dissuade a child's occupational choice. If they were positive and provided wholehearted support for their children's dreams, the child felt confident. If they were unsupportive, children felt confused and torn between obeying their parents and wishing to pursue their interests. The following would help illustrate supportive and unsupportive parents:

"One thing I cannot be a soldier is my parents, they always wanted me to be a doctor, they said that being a soldier is man's work .but there nothing (sic) wrong for me to become a soldier. Now, thinking and thinking, I don't know what will I be

when I grow up in future; I think I will just follow what my parents hope to achieve for me as being a doctor". (P6 Malay girl who would like to become a soldier).

"I must also learn how to speaks in Mandarin; my mother told me that nowadays when we want to get jobs we must know how to speaks Mandarin". (P6 Malay girl who would like to become a teacher).

My relatives thinks (sic) that I should be a doctor but my parents supports me always to be a teacher. (P5 Chinese girl).

"My whole family thinks I should be one too; they have been encouraging me to work hard because to be an architect is not easy". (P6 Malay boy)

It was also interesting to observe that irrespective of which levels they came from, colours associated with dress-codes and/or related peripherals of the profession were also influencing factors. For example:

"I like the work the doctor does; the doctors uniform is white and my favourite colour is white". (P2 Indian girl who would like to be doctor)

"I also like their uniform because my favourite colour is blue" (P2 Chinese boy who would like to become a policeman)

"I like the colour black and the lawyer's coat is black in colour". (P6 Malay girl who would like to become a lawyer)

"I also like the bloody red fire engine". (P6 Chinese boy who would like to become a fireman)

One over-riding factor that came across very strongly in pupils' composition was the realization that they would need to work hard and obtain good results so as to achieve a good education. This then would help them reach their occupational ambitions. Examples follow:

"And I must work more hard for me test and work". (P3 Malay girl who would like to be a doctor)

"If I work hard and be an author that's good!" (P4 Malay girl)

"I hope to be a doctor when I have a high education ... My future depends on my decision. I promise to work hard, aim for the best and most of all, to be a great doctor." (P4 Malay girl)

"I must work hard to achieve to be a manager...my mother is asking me to work hard to be what you want to be. ... I must work very hard this year because I failed two subject (sic). From now on I will study hard." P4 Malay boy)

"I would like to be a teacher when I grow up ... I would study hard and would like to achieve my goal...I need to improve my maths and science to get it too." (P4 Malay girl)

"A teacher must be tidy, neat, well atired and well maned (sic) so from now I will study very hard. If I want to be a teacher, I must study hard. If I never work hard, I cannot be a teacher." (P4 Indian girl)

"When I grow up I want to be a violinist (sic) ... If I want all this to happen, I must practice very, very hard for my violin. I hope I can pass my violin exams with flying colours!" (P4 Chinese girl)

"In order to be a teacher, I need to study and pass my exams with flying colours." (P5 Malay girl)

"I have always dream to be a brain surgeon or a lawyer; although I have to study really hard just to be a successful brain surgeon or lawyer; I do not mind at all." (P6 Chinese girl)

"It is hard to really choose an ambition but I think it depends on our studies." (P6 Malay girl)

In summary, it was found that lower primary pupils tended to consider only one possible future occupation. In contrast, upper primary pupils were more inclined to explore at least two future occupations. It was also found that boys would consider becoming professional sports people as possible occupations while girls, tended to focus on more traditional occupations like "doctor", "lawyer", and "teacher".

A strong motivator for many pupils was that their future occupations were able to help others, especially their own families. Pupils' felt that the achievement of a good occupation together with earned high salaries is meant for parents to feel proud of their offspring: *"my family would be proud of my ambitions"* and *"my family will be very happy when I am the best doctor in Singapore"*.

For many pupils, the purpose of earning high salaries was to contribute towards the needs of the family. Hence the identification of "altruism" as a possible reason for considering particular occupational choices appears to be unique to the pupils from this research project.

Summary

Distinct differences in gender and social class stereotypes were found between lower and upper primary pupils. The gender stereotype subgroups where these differences existed between younger and older pupils included physical appearance (PA) and gender-type activities (GA). The gender stereotype subgroups that had distinct differences between male and female pupils were gender-related subjects (GS) and personality traits (PT).

Singaporean pupils tended to feel that occupations like "cleaner", "doctor", "flight attendant", and "teacher" were androgynous jobs where both men and women could do the work. For these same pupils, occupations like "construction worker", "fire-fighter", and "pilot" were male-dominated jobs. Only nursing was an occupation where primary pupils felt that only women were most suitable.

When it came to determining how important or prestigious occupations from the given list were, pupils' ranked "fire-fighter" as the most prestigious occupation followed by "nurse", "teacher", and "doctor". This ranking was in contrast to the skill level required to carry the work, where "doctor" and "teacher" required higher skill levels than for "fire-fighter" and "nurse". "Cleaner" was the only occupation that pupils ranked last in terms of importance or prestige.

When pupils were asked to circle known occupations from a given list, it was found that older pupils were able to circle more occupations than younger pupils. However when pupils were asked to write down additional occupations

that were not provided in the list, only pupils in P5 and P6 were able to write down more occupations than pupils from the other levels. It was also found that upper primary pupils wrote down occupations that were primarily classified as professionals.

The number of occupations selected by pupils – irrespective of educational levels or gender - was far less than what was available. Although pupils could choose their occupational preferences from a total list of 204 occupations, the total number of occupations cited as preferences was only 89.

It was found that upper primary pupils and girls' occupational preferences tended to be more from the higher-skilled groups (i.e. occupational groups 2 and 3) than lower primary and boys' preferences. More girls preferred occupations from occupational groups 2 and 5 – “professionals” and “service workers, shop & market sales workers”. More boys preferred occupations from occupational groups 7 (“production craftsmen and related workers”) and 8 (“plant and machine operators and assemblers”).

The supporting reasons that pupils provided for their occupational preferences were classified into eight major themes. These were personal interests and abilities, altruism, material gains, fame, parental influence, power, and occupational roles.

Although pupils were provided with up to five options to list rejected occupations (i.e. those occupations that they would not pursue when they grew up), not many of them took up all the options. It was found that boys only tended to reject occupations that were considered illegal and immoral. Examples included “burglar”, “conman”, “drug seller”, “gambler”, and “thief”.

The supporting reasons pupils provided for their occupational rejections were classified into eleven categories. These were work environment, working hours, work tasks and roles, lack of material gains, lack of prestige, physical safety, moral/religious and ethnic reasons, misguided associations, a sense of powerlessness, inappropriate sextype, and boredom.

The only occupational group where pupils did not select nor reject occupations was 6 – agricultural and fishery workers.

CHAPTER FIVE

Discussion

Preamble

Chapter one stated that the purpose of this research project was to describe the career development of primary school children in Singapore. It was felt that this was important as this area had been largely ignored for the primary school sector. For this study, a young person's career development comprised his/her gender and social class stereotypes (i.e. his/her perceptions regarding gender and social differences), his/her occupational knowledge, and his/her occupational choice. Gottfredson had mooted that the elements of a person's "public" self (i.e. his/her gender and social class) had a greater influence on his/her occupational preferences than his/her "private" or personal self (which consisted of "values, personality, plans for family" (Gottfredson, 1996, p.181). As Gottfredson felt that these personal elements were sufficiently covered by other career theorists such as Donald Super and John Holland, she did not pay much attention to them in her theory.

The "public" self was reflected through the sextype and prestige images this person held about various occupations, and if the individual felt that the sextype and prestige dimensions of occupations did not fit with his/her gender and social stereotypes, then these occupational choices were discarded. A person's occupational choices were drawn from his/her knowledge of occupations. According to Gottfredson, each individual's knowledge of occupations had large similarities with other people's knowledge of occupations. This collective pool of known occupations – termed the "cognitive map of occupations" - tended to be common amongst most people along the dimensions of gender and prestige.

Using Gottfredson's theory as an underlying guide, this research project hoped to answer the following research questions:

1. What were the similarities and differences in perceptions of gender and social class differences held by lower and upper primary pupils?
2. What were the similarities and differences that younger and older pupils had in their occupational knowledge?

3. In what ways were the occupational preferences of lower primary pupils similar and/or different from those of upper primary pupils? Were there differences and/or similarities between boys and girls?
4. Were the occupations rejected by girls similar or different from the occupations rejected by boys? What about occupational rejections between younger and older pupils?
5. Were Gottfredson's gender and social class elements the only factors that influenced pupils' occupational selection and rejection? Or did Singaporean pupils have other important factors that influenced their occupational selection and rejection?

Gender Stereotypes

The first research question – “what were the similarities and differences in perceptions of gender and social class differences held by lower and upper primary pupils?” – aimed to compare and contrast how younger and older pupils perceived gender and social class differences.

Gender stereotypes referred to the general beliefs and images that pupils held regarding appropriate characteristics for males and females. There were four subgroups that comprised gender stereotype and these were physical appearance (PA), gender-type activities (GA), gender-type subjects (GS), and personality traits (PT). Gottfredson had theorized that the development of children's gender stereotype moved in tandem with their cognitive development. In other words, pupils' generalized beliefs about the characteristics of males and females would begin with an awareness of more concrete elements and gradually progress to more abstract elements. It would thus be expected that the majority of younger children would hold a stronger awareness and belief in the importance of concrete elements related to gender stereotypes and be less aware of abstract elements. Older children, on the other hand, would become increasingly more aware of the importance of abstract elements of gender stereotypes.

Figure 4-2 in chapter four showed that the means for each of the subgroups' scores comprising gender stereotypes were lower for older pupils than for younger pupils. In general, lower mean scores meant that older pupils viewed most statements on gender stereotypes as “false” as compared to

younger pupils. Figure 4-3 in chapter four also showed the comparative means between girls and boys for the subgroups comprising gender and social class stereotypes. Girls' mean scores were lower than boys and this implied that girls viewed most statements as "false" than boys.

Table 4-9a from chapter four showed that there was no significant interaction between gender and educational levels at the 5% significant level. This meant that within each educational level (i.e. lower and upper primary), there was no significant difference in male and female pupils' perceptions regarding gender and social class stereotypes. The same table also highlighted that there was a significant relationship between the "gender and social class stereotypes" and the educational levels of pupils at the 5% level of significance (or $p \leq 0.05$). This meant that it was pupils' educational levels that significantly influenced their general beliefs about male-female characteristics. This then confirmed Gottfredson's theory that pupils' general beliefs about the appropriate gender characteristics developed according to differences in age / educational levels.

There thus appeared to be a meaningful or significant relationship between gender stereotypes and educational levels (or age) only for these subgroups. Pupils' gender did not have any influence on the development of their gender stereotypes.

Although the mean scores for all of the subgroups comprising gender stereotypes of lower primary pupils were higher than the mean scores for upper primary pupils, table 4-8 in chapter four indicated that the differences in means between lower and upper primary were highly significant – at the conventional significant level of 5% (or $p \leq 0.05$) – only for two subgroups comprising gender stereotype. These subgroups were physical appearance (PA) and gender-type activities (GA).

A closer examination of the specific statements (see appendix 3-3 for statements 1 - 8) describing gender characteristics related to physical appearance showed that lower and upper primary pupils provided distinctly different responses for statements concerning hair-lengths and the type of clothing (i.e. trousers and shorts) for males. Older pupils were not as rigid about hair-lengths for males as younger pupils were. Lower primary pupils' –

both boys' and girls' –unwillingness to accept long hair for men could be due to the strong emphasis on acceptable hairstyles as part of the school's dress code. This finding appeared to support Kohlberg (1966), as cited by Gottfredson (1981), who noted that younger children “perceive sex-appropriate behaviour as a set of rules for behaviour, even as a moral imperative...”(p.559). Older pupils' apparent liberal views on hair-length, compared to their younger counterparts' views, could be due to older pupils' perception that hair-length was not a defining factor for differences between males and females.

However when it came to the type of clothing, both groups felt that males could only wear trousers and shorts. It might not have occurred to them that males could wear clothing type generally associated with women. For example, the Scots wear kilts, and Malay men, *sarongs*. According to Berk (1997), this inability to separate elements associated with sex – for example, clothing – from determinants of sex (i.e. physical and biological characteristics) was primarily the domain of pre-schoolers (p.504). However in another study by Levy, Taylor & Gelman (1995) involving participants of “4- and 8-year-olds and adults (who) were asked how much they would like being friends with an agemate who violated gender-role expectations for behaviour”, it was found that violations of “feminine” rules were more tolerated than violations of “masculine” rules. Levy et. al then concluded that the finding “reflects greater social pressures on boys and men to conform” (p.506). Besides these reasons, the distinction of hair-length and clothing type might also reflect stronger indicators for male-female differences in physical appearance than the other statements.

The other significant area of difference for lower and upper primary pupils was GA. This area attempted to deal with activities generally associated with each particular gender. For example, “cooking” and “doing housework” were considered “feminine” activities, while “repairing broken things” and “pumping petrol” were generally considered “masculine” activities. Although both lower and upper primary pupils provided similar responses for statements describing “feminine-masculine” activities (e.g. statement 9 – “women must learn how to cook”, and statement 21 – “men know how to repair things that are broken”), closer examination of the frequency responses revealed that a smaller percentage of older pupils as compared to younger pupils felt these gender-

specific activities were necessarily true. In other words, a greater number of older pupils felt that it could be false that “women must learn how to cook”. This might also imply that older pupils with cognitive maturity and experience, their perception regarding masculine-feminine activities might be more liberal. Hence, these older pupils might not be as influenced with sextype factors as hypothesized by Gottfredson. It was felt that the current statements comprising gender-type activities might have been made more distinctive for each particular gender if all the statements had been rewritten to include the word “must”.

Figure 4-3 from chapter four illustrated that the means for all subgroups comprising gender and social class stereotypes were lower for females than males. This then meant that girls held more liberal views regarding gender differences than boys did. However when the differences in means between male and female pupils were tested for significance, the findings indicated that female pupils chose significantly more “false” statements than male pupils for subgroups GS (gender-type subjects) and PT (personality traits).

A closer examination of the specific statements found that a higher percentage of girls had consistently rated all statements comprising GS as “false”. In contrast, the boys were not as consistent in their rating of all statements. A higher percentage of boys felt that the statements “men like subjects such as mathematics and science” and “men will score high marks for Mathematics and Science” were true. These findings from the Singapore sample appeared to support the findings of a 1990 tri-nation study conducted by Lummis and Stevenson, cited by Berk (1997), that boys felt that they would perform better in mathematics and science as compared to girls. Berk (1997), after reviewing studies by Feingold (1988, 1993), and Linn & Plant (1995), had also observed that boys outperformed girls in tests that focused on mathematical abilities. This was especially obvious when the comparison was between high-achieving pupils (p.526). It thus appeared that only boys seemed to hold the traditional belief that mathematics and science were masculine subjects. The girls, however, did not share this belief with their male counterparts. When it came to the belief that language (i.e. English and mother-tongue) were considered feminine subjects, both girls and boys did not support this belief. Girls appear to hold less traditional views compared to boys

as they did not feel that one particular gender held an advantage in certain subjects over another.

A closer examination of the statements comprising personality traits (PT) revealed that males and females viewed only two statements differently. These were “men are clever” and “men do important work”. Generally more boys believed that these statements were “true” while only marginally more girls believed that these statements were “false”. These findings may not have been too surprising as these statements referred to general ability levels that were applicable to both males and females as opposed to specific abilities associated with specific genders (e.g. verbal and spatial abilities). It also further supported the 1990 study by Lummis et. al cited by Berk (1997) discussed in the previous paragraph, which indicated that boys had a greater tendency to hold more traditional beliefs than their female counterparts. Berk (1997) had also noted that sex-related differences – whether in abilities or personality traits – had changed over the years, with the gap between girls and boys closing (p.526).

In summary, it appeared that the only areas of gender stereotype where distinctions existed between lower and upper primary pupils were in physical appearance and gender-type activities. For physical appearance, it appeared that lower and upper pupils did view hair-lengths and clothing types - especially for men – differently. When it came to gender-type activities, younger pupils had a stronger affinity for statements that reflected traditional masculine and feminine activities (i.e. cooking, doing housework, repairing broken things, pumping petrol) as compared to their older counterparts. However, these traditional views did not hold for both younger and older pupils when opposing statements, such as men not needing to learn how to cook or do housework, were provided. A system of meritocracy exists in Singapore: individuals – irrespective of race or gender – are provided with the opportunities to achieve as far and as much as their individual abilities can take them. As a result, children in schools are encouraged to try a variety of activities irrespective of whether these activities are considered suitable for specific genders or not. Hence, boys do have an opportunity to try their hand at simple cooking classes while girls do have the opportunity to try their hand at robotics and other technological areas.

The distinct differences that existed between pupils of different gender were primarily on gender-type subjects and marginally, on personality traits.

Social Class Stereotypes

Social class stereotypes referred to general beliefs people have about what society values as important or unimportant. Like gender stereotypes, children's growing understanding of what society considered was prestigious developed in tandem with their cognitive development. The subgroups comprising social class stereotypes were social class stereotype 1 (SC1) and social class stereotype 2 (SC2). The specific sub-areas classified under SC1 were transportation, accommodation, clothing, sports, and eating outlets. The specific sub-areas classified under SC2 were mannerisms and occupational activities and abilities. It was noted that the specific sub-areas started with social beliefs related to concrete elements and progressed to social beliefs that related to abstract elements (see appendix 3-3 for the specific statements).

Chart 4-2 from chapter four indicated that the means for both subgroups comprising social class stereotype were higher for lower primary children than for older or upper primary children. Chart 4-3 from chapter four also showed that the means for subgroup SC1 and SC2 were lower for female pupils than for male pupils.

Like the subgroups for gender stereotypes, relationships between SC1 and SC2 with educational levels and gender had to be tested for significance. Table 4-8 from chapter four indicated that the difference in means between younger and older pupils was significant – at the conventional significant level of 5% - for all subgroups comprising social class stereotypes. The significant figures for subgroups SC1 and SC2 were 0.02 and 0.00 (when reduced to 2 decimal places) respectively. As these figures were way below the significant level of 5%, this meant that the difference in means between lower and upper primary pupils for these subgroups were very significant. Table 4-9 which tested for significance in differences in means between male and female pupils found no significant relationship, at a 5% level of significance, existed for SC1 and SC2.

A close examination of the specific statements comprising SC1 showed that the patterns of responses for both lower and upper primary pupils were similar to all statements. In other words, when a higher percentage of lower primary pupils put a “true” or “false” response for the statement, upper primary pupils also had similar responses. The distinction, however, was in the magnitude of percentages for the same response of certain statements. For example, for statement 20 (“poor people cannot afford to own cars”), 70% of lower primary pupils agreed with this statement compared to only 51% of upper primary pupils. It appeared then, that a greater proportion of older pupils tended to impute less meaning to the visible trappings of prestige than younger pupils.

Three statements within SC1, however, had different responses from lower and upper primary pupils. These statements which dealt with transportation (statements 38 - “rich people normally travel by car and taxi”), housing type (statement 40 - “poor people live in flats”), and sporting activities (statement 43 - “rich people play golf”) found a higher percentage of younger pupils treating them as “true”: 63.83%, 51.06% and 72.34% respectively. A greater proportion of older pupils treated these statements as “false”: 50.67% of upper primary pupils rated as “false” statements 38 and 40, and 53.33% of upper primary pupils rated as “false” statement 43. These responses seemed to confirm that younger pupils were more influenced by the visible trappings of prestige as compared to older pupils.

The pattern of responses for areas covered under SC2 was similar as for SC1: the pattern of responses for both younger and older pupils was similar for statements 48 to 52 and 58. The distinction, again, was in the magnitude of percentages for the same response. Two statements – 47 (“rich people speak English well”) and 57 (“rich people are clever”) – had completely opposing responses from younger and older pupils. A higher percentage of younger pupils (59.57% and 68.83% respectively) felt that these statements were “true” as compared to a higher percentage of older pupils, who felt that these statements were “false” (57.33% and 64.00% respectively).

Social valuation was an unusual construct – as children’s understanding of social class became more sophisticated, they also become more sensitive

about revealing this knowledge (Gottfredson, 1981, p.562). In light of this, the comparative differences in older pupils' responses with their younger counterparts could be due to the older pupils being more aware that highlighting differences between rich and poor people might not be an appropriate or polite thing to do.

In summary, it was found that there were distinct differences between older and younger pupils in their perception of social class stereotypes. The areas where these distinctions existed between younger and older pupils were in transportation, type of accommodation, sporting activities, English ability, and intellectual capability (i.e. rich people were perceived by a majority of younger pupils as being more clever than poor people).

Gottfredson (1986) had noted that social class beliefs comprised an integrated understanding of the variety and diversity of cues that constituted one's position in society (p.561). The process began with the initial recognition of observable and concrete cues and eventually, the more unobservable or abstract cues. Citing Stendler (1949), Gottfredson observed that younger pupils noticed "homes, clothing, recreational activities" (1986, p.561), and these appeared to be confirmed by those social class areas where distinctions existed between lower and upper primary pupils.

The above findings of lower and upper primary pupils' gender and social class stereotypes answered research question one - "what were the similarities and differences in perceptions of gender and social class differences held by lower and upper primary pupils?" These findings indicated that although distinctions existed between lower and upper primary pupils' beliefs regarding physical appearance (i.e. hair-lengths and clothing types), both levels of pupils held similar beliefs regarding the violation of "masculine rules" (i.e. both groups agreed that "men can only wear trousers and shorts"). Distinctions between younger and older pupils also existed for gender-type activities. Younger pupils tended to hold more traditional views for "feminine" and "masculine" activities.

For social class beliefs, distinct differences existed between younger and older pupils in those concrete and observable elements comprising social class. Younger pupils held more traditional views for social class cues like transportation, accommodation, and sporting activities. Older pupils, on the

other hand, were less concerned about these tangible trappings of social class differences. It was also noted that older pupils might have also realized that openly acknowledging these social class differences might not be a socially acceptable practice. Hence the differences in older pupils' responses might have reflected this tacit understanding as well.

Pupils' Sextype and Prestige Perception of Selected Occupations

As mentioned earlier, pupils' images of occupations were based on sextype and prestige. Occupations were rejected when pupils perceived that the sextype and prestige of the occupations did not meet their personal gender and social class beliefs. The two-fold purpose of applying pupils' beliefs of gender and social class differences to selected occupations was:

- (a) to look at pupils' perceptions regarding which sex was most suitable to do the work of eight occupations – cleaner, construction worker, doctor, fire-fighter, flight attendant, nurse, pilot, and teacher and
- (b) for pupils to determine how important / prestigious they thought each occupation was.

The findings showed that many pupils from the sample perceived that the work of "cleaner", "doctor", "flight attendant", and "teacher" were suitable for both men and women (i.e. these were gender-neutral occupations). These findings for "teacher" and "cleaner" were surprising as they appeared to contradict official statistical data. As mentioned in chapter two, a study on occupational segregation by gender conducted by the Manpower Statistics and Research Department (MRD) in 2000, found that "female dominance in occupations such as *cleaners, labourers, and related workers and teaching associate professionals* (mostly primary and pre-primary teachers) has increased compared with 1991" (p.11). One possible cause for this anomaly between pupils' perception and statistical information could be due to their literal interpretation of "work done". Many pupils – in their daily interactions with their teachers – had observed that the duties of a teacher were to "*mark books and worksheets*", "*teach Math, English, and Science*", and "*after recess I bring my class up and continue (sic) with teaching them*". These observations – drawn from pupils' free-response compositions - had probably led pupils to conclude

that the work of a teacher could be easily done by both men and women. They may not have observed that more women than men were teachers in their school, nor felt that this difference in gender proportion was relevant to answering the question in the survey. A similar reason might also have existed for pupils' responses of both men and women being able to do the work of a "cleaner".

Men-only jobs were "construction worker", "fire-fighter", and "pilot". A sizeable number of pupils across all levels, however, had indicated that these occupations could be done by both men and women. This belief that both men and women were capable of doing the work of "construction worker", "fire-fighter", and "pilot" may not be too unrealistic. In the early twentieth century, *Samsui* women – female immigrants from the Samsui region in Kwangtung province, China – "worked alongside men at construction sites in Singapore, enduring the same grueling conditions" (Sim, 2004). Primary school children would have come across *Samsui* women in their history books. This might have influenced their belief that construction work, and possibly other male-dominated fields, can be done by both men and women.

Although more men work in the SCDF, 27% of SCDF staff was either "uniformed senior officers or emergency response specialists. 26 out of a total 127 female emergency response specialists are also fire and rescue specialists" (SCDF, 2004, p.39). The Singapore study on occupational segregation had also noted that "over the years, females in Singapore have made inroad into male-dominated occupations, especially those where brain rather than brawn is a premium" (MRD, 2000, p.12).

Only "nurse" was considered to be most suitable for women only. This last observation was not surprising as 85% of Singaporean women work as life science and health associate professionals (MRD, 2000, p.11).

When it came to occupational importance or prestige, the findings were equally as interesting as for sextype. As explained in chapter four, 119 (instead of all 123) pupils' responses were used as four pupils had omitted to determine the prestige of at least one occupation. Both lower and upper primary pupils' responses were combined as findings in chapter four indicated that a large

majority of lower and upper primary pupils ranked these eight selected occupations as either “very important” or “important”.

Table 4-11 (from chapter four), which summarised the responses of 119 pupils from the survey sample, showed that pupils’ (from all levels) rank order of prestige for the eight occupations was as follows: 1st – “fire-fighter”, 2nd – “nurse” and “teacher”, 4th - “doctor”, 5th – “pilot”, 6th – “construction worker”, 7th – “flight attendant”, and 8th – “cleaner”.

It was interesting that contrary to popular belief, the findings showed that “doctor” was not ranked as the most prestigious / important occupation. These findings might have been influenced with the events that had taken place during this period in Singapore. At the time that the survey was administered, Singapore had just recovered from the nation-wide Severe Acute Respiratory Syndrome (SARS) epidemic. Healthcare professionals and Singapore Civil Defence Force (SCDF) personnel (of which fire-fighters were a part of) were in the media spotlight. The media had also covered the deaths of prominent doctors due to this highly contagious disease. This could have led pupils to re-perceive the vulnerability of doctors. As one primary five pupil had written during the free-response composition,

“At first I think that being a doctor when I grow up is a good choices (sic); but when I heard about some doctors have been infected by SARS virus, I felt very scared; some doctor had died because of the SARS virus; now I do not wanted (sic) to be doctor anymore”.

As stated in chapter two, Chiew, Ko & Quah (1991) had observed in their Singapore study on occupational prestige that a key criteria for an occupation to be rated “excellent” was the occupation’s “contribution to society”. They had also noted that “status and social recognition alone have not been seen as important criteria for ranking “excellent” and “average” occupations” (p.46). In line with this observation, pupils’ prestige ranking of the above eight occupations was not too surprising.

Besides the media attention due to SARS, public education efforts could have strongly influenced the importance and thus prestige of “fire-fighters”. The SCDF had partnered the “National Fire Prevention Council and the Civil

Defence Executive Committees in educating the public in fire safety” (SCDF, 2004, p.34). This was confirmed by a P6 male pupil, who wrote in his free-response composition,

“It is because when I was 9 years old, my mother brought me to a excibition (sic) on fire fighter; I saw how they demonstrate on saving people in a trapped building; I also like the bloody red fire engine; it is my dream to become a fire fighter”.

Teaching is considered a noble profession in Singapore. As extracts from a few pupils’ free-response compositions show:

“A teacher is one of the most important occupation; why? if we don’t have a teacher, no child can be well-educated”

“lots of teachers seems to think that others are lucky as they have better jobs; but I think that they are fortunate to have a very good earning job because a teacher is given lots and lots of respects from students and principals”

“and of course let’s not forget the very, very special Teacher’s Day, when pupils express their appreciation for their teachers; not only that, but teaching has other rewards too – respect, admiration; many pupils respect & admire their teachers; so like I say, teaching has its own rewards and it is my dream to be a teacher”

The importance that Singapore had placed on this occupation can be seen in having 1 September designated as Teachers’ Day. All schools set aside time from lessons to celebrate this special occasion and pupils often give their teachers handmade cards and gifts to commemorate the special work that teachers have in their pupils’ lives. It could be these experiences that enable pupils to rank “teachers” third in terms of overall prestige amongst all the eight occupations.

“Cleaner” being ranked last in importance in comparison with the other eight occupations terms was not surprising. However, what was unusual was that most pupils – irrespective of age – had rated that a “cleaner” was important.

Only a sizeable number of pupils from primary 3 and 5 had rated this occupation as “unimportant”.

Singaporean pupils’ perception of sextype and prestige for these selected eight occupations differed from Gottfredson’s findings. Using Holland’s occupational types, Gottfredson had found that realistic occupations (like “fire fighter”) were generally less prestigious than investigative occupations (like “doctor”). However Singaporean pupils had rated “fire fighter” (a realistic occupation) as being more prestigious than “doctor” (an investigative occupation). This anomaly could have been affected by the nation-wide SARS epidemic that resulted in the death of one doctor.

Gottfredson (1986), citing Shinar (1975), had noted that masculine jobs had a greater range of prestige than feminine jobs (p.553). “Cleaner” – which Singaporean pupils considered were a gender-neutral occupation but which were part of the occupational group where women were over-represented – was the least prestigious occupation from the list. Singaporean pupils also found that the gender-neutral “flight attendant” was less prestigious than the masculine “construction worker”. It appeared that for Singaporean pupils, gender-neutral or feminine occupations had lower prestige than masculine occupations. Only two occupations – “teacher” (a gender-neutral, medium prestige occupation) and “nurse” (a feminine, medium prestige occupation) – fitted Gottfredson’s “cognitive map of occupations”.

In summary, Singaporean primary pupils had tended to view gender-neutral occupations as having a greater range of prestige than masculine jobs. This had differed from Gottfredson’s “cognitive map of occupations”. Irrespective of age, Singaporean pupils felt that the work of a “cleaner”, “doctor”, “flight attendant”, and “teacher” could be done by both men and women (i.e. these were gender-neutral occupations). “Construction worker”, “fire-fighter” and “pilot” were “masculine” occupations (i.e. the work could be done by men only); and “nurse” was a “feminine” occupation. In terms of prestige ranking of occupations, “cleaner” was ranked the least prestigious occupation – in terms of having the least number of pupils who had rated the occupation as “important – while “fire-fighter” was the most prestigious occupation. “Doctor” was ranked the fourth most important occupation, behind “nurse”, and “teacher”.

Pupils' Occupational Knowledge and Preferences

The second research question for this project – what were the similarities and differences that younger and older pupils in their occupational knowledge – aimed to determine the quantity and quality of occupations known by pupils from different educational levels, and whether there were greater similarities or differences in their knowledge.

Findings described in chapter four found that the occupational knowledge of older pupils was greater than the occupational knowledge of younger pupils (i.e. the mean number of occupations known by younger and older pupils was 30.3 and 41.1 occupations respectively). Irrespective of age, however, pupils' occupational knowledge was stronger when a list of occupations was presented and weaker when they had to write down occupations that they knew. When an occupational list was presented, pupils' occupational knowledge was about 10 times more than when pupils were expected to independently write down known occupations and no occupational list was presented (see tables 4-12 and 4-13 from chapter four). This appeared to suggest that Singaporean pupils were unable to recall many occupations without the aid of an occupational list. These findings also showed that in the absence of an occupational list, upper primary pupils did not necessarily have an advantage of knowing quantitatively more occupations than their lower primary pupils (see table 4-15 from chapter four). For example, one primary one pupil was able to write down the second highest number of occupations without the aid of an occupational list. This appeared to support Gottfredson's circumscription principle one, which indicated that pupils' increasing capacities for abstractions were dependent primarily on their cognitive abilities rather than age (1996, p.189).

In terms of the quality of occupations written down, one difference between lower and upper primary pupils was that the latter were able to write down many occupations that were classified in SSOC 2000's occupational group 1 ("legislators, senior officials, and managers"), occupational group 2 ("professionals") or occupational group 3 ("associate professionals"). In contrast, lower primary pupils did not write any occupations for groups 1, 4 and 7 (i.e. "legislators, senior officials, and managers", "clerical workers", and "production craftsmen and related workers" respectively). Lower primary pupils

were only able to write at most 2 occupations each for occupational groups 2 and 3 (see table 4-14 in chapter four). It appeared that older pupils knew more occupations that required higher skill levels compared to their younger counterparts. What had not been investigated in the study was the source of their knowledge.

When it came to pupils' abilities to name specific occupations, the professionals most commonly listed by both lower and upper primary pupils were "accountant", "actor/actress", "dancer", "scientist", and "singer". Other similarities included the ability of both lower and upper primary pupils to identify sophisticated occupations. For example, lower primary pupils did write "playwright" and "surgeon" while upper primary pupils wrote more unusual job titles like "steeplejack".

In summary, upper primary pupils' occupational knowledge was greater only when an occupational list was present. In the absence of guided assistance, lower primary pupils' occupational knowledge was not necessarily lesser than their older counterparts. In terms of the quality of occupations known, it appeared that older pupils knew more occupations that could be classified into groups that required higher skills and abilities than younger pupils. Brighter lower primary pupils were able to list equally sophisticated occupations as upper primary pupils.

The third research question for this project aimed to investigate whether there were differences between older and younger pupils' occupational preferences, and whether there were differences between the occupational preferences of boys and girls. Another related research question also aimed to determine the factors – other than sex-type and prestige - that influenced pupils' occupational preferences.

As mentioned in previous chapters, pupils' occupational preferences were drawn from their occupational knowledge. Singaporean pupils' occupational preferences were only 42.8% of their occupational knowledge (or 89 occupations out of the total number of 204 known occupations). This was a far cry from the total number of 314 jobs, reported in a study of Australian sixth-grade students by McMahon, Carroll, & Gillies (2001). One factor that might account for the numerical difference was the influence of career education

lessons. The Australian children in the McMahon, Carroll, & Gilles' (2001) study had undergone a series of career education lessons as part of the study. In contrast, Singaporean pupils in this research study had not undergone any career education lessons as primary schools in Singapore did not conduct them.

The ability to articulate different occupations would also be dependent on the child's command of the English language and his/her vocabulary. Generally, Australian children have a stronger command of the English language than Asian children. Although 40.65% of the pupils in the survey sample spoke English at home (as indicated in table 4-4 from chapter four), a larger proportion (totaling 52.84%) either spoke Mandarin, Malay or Tamil at home. The difference in occupational knowledge exhibited by Singaporean pupils compared to their Australian counterparts could be due to these two factors.

The findings found that the quantity of older pupils' occupational preferences was 31% greater than the quantity of younger pupils' occupational preferences. This increased quantity of occupational preferences of older pupils was expected as the cognitive maturity and experience of older pupils probably provided them with a greater pool of occupations to draw from compared to younger pupils. In addition, older pupils' occupational preferences were primarily classified as either "professionals" and/or "associate professionals". This was not surprising as it appeared that the better developed cognitive abilities of older pupils might have helped them be aware that occupations from these groupings required higher level skills than the other groupings found in the SSOC 2000.

The lack of occupational preferences that were classified as occupational group 6 ("agriculture and fishery workers") could be due to Singapore being a city state and pupils' misconception that the agriculture sector did not exist. Since Singapore is land scarce, Singaporean farms would not look like the farms from countries with larger land areas. This could be another reason for the lack of awareness amongst Singapore pupils. The other occupational grouping where pupils did not list any occupational preferences was 9 ("cleaners, labourers and related workers"). As shown later, this grouping had

occupations that pupils would reject and a strong reason was the lack of prestige associated with occupations in this grouping. There was only one occupational grouping which was older-pupils-only preferences. This was occupational grouping 4 - "clerical workers".

In line with Gottfredson's theory of circumscription, this meant that both lower and upper primary pupils would no longer consider any occupations from groupings 6 and 9 as possible future occupations. Only lower primary pupils would not consider any occupations as occupational preferences from the group "clerical workers".

Both lower and upper primary pupils had occupational preferences that were non-classifiable into any occupational groupings found in SSOC 2000. One key difference between lower and upper primary pupils' occupational preferences was the occupational preferences of younger pupils being more rooted in reality as compared to their older counterparts. This anomaly, which went against Gottfredson's theory which noted that younger pupils' occupations were more fantasy while older pupils' occupations were more realistic, may have been due to the nomenclature used by younger pupils. For example, lower primary pupils used terms like "butcher", and "fruiterer" to refer to meat and fruit sellers. The nomenclature could be influenced by the books pupils read. The lack of reality of older pupils' occupations preferences certainly was not aligned with Gottfredson's theory. Examples of older pupils' fantasy occupational preferences included "celebrity", "explorer", "Olympician" and "spy". Again, this might have been influenced by the media and story books that older children read. For example, it would not be too surprising to find "explorer" and "spy" being strongly featured in the type of story books that these children read.

Both younger and older pupils cited the same occupational preferences – "manager and shopkeeper" – that were classified as occupational group 1. Other similarities included both lower and upper primary pupils citing the same occupations – "artist", "firefighter" – that were classifiable in more than 2 SSOC occupational groupings.

The difference between boys and girls in occupational preferences, however, was more distinct (see table 4-15 in chapter four). There were

specific girls-only and boys-only occupational groupings and occupations. For example, girls-only preferences came from: "clerical workers". For girls, this was not too surprising, given that it was found that "females tend to be highly over-represented in this occupational group in most countries" (MRD, 2000, p.8). However for the Singapore context, this was unusual as the same study by MRD found that women were over-represented for the "cleaners, labourers & related workers" occupational group. One possible reason for this anomaly could be due to the various sub-groups comprising this overall group of "cleaners, labourers & related workers". There were a total of ten sub-groups for this occupational grouping 9. Two of the larger sub-groups, "domestic helpers and cleaners" and "cleaners in officers, hotels and other establishments", were female-heavy. The specific occupation that boys preferred was "gardener", which belonged to the subgroup "agricultural and fishery labourers and related workers". The agricultural industry for Singapore as a whole was a very minor one. This meant that the total number of labourers represented for the agricultural sub-group would not be as large as the larger sub-groups for cleaners.

Another reason for the apparent anomaly may also be explained by boys' preferences for occupations that were realistic (to use Holland's typology) and practical. This was confirmed with the other boys-only occupational preferences: "carpenter", "cobbler", "electrician", "mechanic", and "plumber". Gottfredson (1981) had cited Shinar (1975) who found that Holland-typed realistic jobs tended to be clustered towards "masculine" ratings.

Other boys-only selected occupations also included "referee", "basketball judge/umpire", "lifeguard", "soccer player/footballer". This focus on sports was another characteristic of boys-only occupational preferences. This confirmed the earlier cited Australian study conducted by McMahon *et. al* (2001) that found that "sportsperson was only nominated as an occupation by boys" (p.30). The study by McMahon *et. al* had also confirmed another study by Bobo, Hildreth, & Durodye (1998) who found that military occupations were also only quoted by boys. The Singapore study, however, showed that girls also did choose occupations from the Armed Forces, namely "navy" and "soldier". It was found that sex-typing was probably more a parental concern than the

child's. One girl had written: *"one thing I cannot be a soldier is my parents ... they said that being a soldier is man's work, but there nothing (sic) wrong for me to become a soldier"*.

Other boys-only occupational preferences were "celebrity", "explorer", "fruiterer", "Olympician", "pop star", "President", "spy", and "story teller". Other girls-only occupational preferences, in addition to the clerical occupations mentioned above, included "art teacher", "babysitter", "butcher", "dance teacher", "dancer", "flight attendant/stewardess", "florist", "barber/hairdresser", "housekeeper", "lorry driver", "pastor", and "violinist". It can be seen that boys-only occupations, when compared with girl-only occupations, had strong fantastical elements in them. These included:

- a) made-up occupational titles like "olympician"
- b) unrealistic occupations such as "explorer", "spy", and "President". Pupils' accompanying reasons reflected that they perceived that these occupations were fun and full of adventure. They also had no understanding as to the type of work involved for each occupation. For "explorer" - *"I may have a lot of treasure and mesterious (sic) items"*. For "spy" - *"it is fun, I can use gadgets and more things ... I also can fly a aeroplane or a helicopter...but I prefer being in a helicopter because I had never ride on a helicopter...I also can jump down the helicopter with a parachute...but it is very dangerous and scary ...I still do not care about that because it looks fun"*. "President" - *"so that I can stop shopkeepers from selling ciggrates (sic)"*.
- c) "pop star" and "celebrity". Male pupils who had written these occupations down as preferences had desires to become famous - *"I would like to become famous"; "I like to sing and act not than I want to heap praises on myself. I think I can be a celebrity one day"*.

The desire for fame could have been influenced by the broadcast of *American Idol* on Singapore television stations, and the recent local production of *Singapore Idol*. The fantasy-elements found in many boys-on occupations appeared to be part and parcel of the normal career development of a primary school child. Super's theory had articulated that pupils in primary school were still in the fantasy stage of their career development. The sub-stages

comprising the opening segment of Super's Life-stage career theory included "fantasy, interest, and capacity" (Herr & Cramer, 1996, p.234). The approximate age-range for the "growth" stage was from 0 to 14 years. It was therefore not unusual for pupils in primary school to fantasize about occupational choices during this period as they gradually become "concerned about the future, increasing personal control over one's own life ... and acquiring competent work habits and attitudes" (Super, Savickas, & Super, 1996, p.131). The unreality of primary pupils' occupational preferences during Super's growth stage was further supported by Ginzberg, Ginsberg, Axelrad, & Herma (1951), cited in Herr & Cramer (1996), who "have labeled the gross phases of the vocational choice process – the period of development – as fantasy (from birth to age 11)" (p. 229). Ginzberg et. al have noted that the "fantasy" stage is when there is a "lack of reality orientation" (Jurgens, 2004, p.2).

Although girls-only occupational selections focused primarily on occupational titles that were plausible, their supporting reasons also reflected a lack of realistic understanding as to the full demands of the work. For example, many of their supporting reasons often contained the word "fun" – *"being an art teacher is very fun!!"*, and *"because I like to dance; I like to dance because it is fun to dance ..."*. Other fantasy statements were found in the supporting reasons for occupations like "child specialist" and "scientist":

"I thought of it (child specialist) when I was 3 years old".

"I can create potions to make people grow younger or even make cats turn into dogs! I also can create cures for illness like SARS and AIDS...I can create the medicine stronger like cold's cure for coughs too...maybe I will start a small labratry (sic) to a big one...when children are naughty, I can create a potion for them to become good,,,I can make a cure for stress and make a cure for people wearing glasses see again without their glasses...maybe I can make people who are dead alive!..well, creating potions and cures are fun but maybe I will stress myself so I must make the cure for stress first...I must try my best to create the things that I want my best to create

the things that I want...I must study hard to become my ambition”.

Both boys and girls also used the nomenclature of occupations that was very uncommon for the Singapore context. For example, “butcher”, “fishmonger”, “fruiterer”, and “greengrocer” to refer to traders in meat, fish, fruit and vegetables. This could be a reflection of the British influence on Singapore’s development as a nation.

One of the elements comprising gender-stereotype that had a significant relationship with pupils was physical appearance. The influence of this element in pupils’ occupational selections can be seen in their selecting occupations where the colour of the occupation’s uniform or related trappings was cited as an influencing factor. The occupations were “doctor”, “fireman”, “lawyer” and “policeman”. It was both lower and upper primary pupils who were influenced by physical appearance. This appeared to contradict Gottfredson’s theory which noted that younger pupils were more influenced by concrete elements of sextype and prestige rather than older pupils.

Chapter four had described eight themes that pupils’ supporting reasons for their occupational selections had been classified under. The majority of the reasons – personal interests and abilities, material gains, fame, and power - appeared to reflect Super’s Life-stage career theory and Gottfredson’s theory where occupational selections were based on prestige. This emphasis on the importance of prestige in Singaporean (and Asian) pupils’ occupational selections has been further supported by a study on Asian Americans described in chapter two. The study conducted by Leung (1990) had found that “prestige is a very important variable affecting the career behaviour of Asian Americans” (p.192).

Chapter four had also noted that pupils did also realize that to achieve one’s occupational preference, there was the need to acquire diligence. There was also a growing realization amongst upper primary pupils that doing well in one’s studies was related to getting a good education, which would provide them with a very strong chance of realizing their ambitions of a good occupation. This was very much reflective of a key developmental task for Super’s growth stage: “convincing oneself to achieve in school and at work”

(Super, Savickas, & Super, 1996, p.131). Thus pupils would need to be helped into a growing awareness that school is preparation ground for instilling personal qualities that would stand them in good stead for their futures.

The most unusual reason that Singapore pupils cited was “altruism” – being unselfishly concerned about others. This was further elaborated in the free-response compositions and were often associated with becoming “doctors”, “judge”, “nurse”, lawyers”, and “scientist”. Even the purpose of earning a high salary was not to spend on one’s self but to be given to parents or to help out the family situation.

The revelation of “altruism” as an influencing factor for choosing particular occupations appeared to be unique amongst this group of Singaporean pupils. A 1991 study conducted by Singaporean sociologists - Chiew, Ko, and Quah – on occupational prestige found that survey respondents used a “multiplicity of evaluations criteria ... in rating occupations ... and that people use different criteria for ranking “excellent” and “average” occupations” (p. 46). These respondents felt that one possible criterion that could be used as the basis for judging an “excellent” occupation was “contribution to society” (p. 46). The focus of these primary school pupils wanting to help society by finding the *“cures for illness like SARS and AIDS”, and going “to places where doctors are needed like in some part of Myanmar; there are many people dying because there are no medicine or doctors”,* was probably reflective of pupils viewing these high-prestige occupations as going beyond just earning a high salary but also being able to contribute to the well-being of society.

The other influencing factor for pupils’ occupational preferences was either the parent’s occupation or parents’ desire for their children to consider particular occupations. This was seen in pupils’ reasons such as *“I am also interested in engineering ... my parents are also engineers”, “my mother said I must become one (doctor)”;* and *“my father is army to; dath why I whant to be a Arimy to; my father say I must be a Airmy (sic)”*. The influence of parents was also seen in the Australian study by McMahon et. al (2001) and that “parents were listed most frequently regarding what or who would influence them toward or away from a job” (p.30).

It appeared – from the responses written by pupils – that their parents suggested particular occupations for their children to consider without finding out whether their children were interested in these occupations or not. This “unidirectional” form of communication between parent and child appeared to support one of the perspectives mooted by Young, Valach, & Patrick (1995) in chapter two.

The influence of families also appeared to support the study on South-East Asians conducted by Fernandez (1988) mentioned in chapter two. This study stated that families were viewed as the conduit from which the old pass on their values and wisdom gleaned from life experiences towards the young and for the latter group, to provide a source of caring support to their elders. Thus the strong influence of the family in general and parents in particular, was another factor that appeared to influence pupils’ occupational preferences.

Super, Savickas, and Super (1996) had noted that a person’s “career pattern – that is, the occupational level attained ... is determined by the opportunities to which he or she is exposed” (p.124). Pupils’, whose parents or relatives work in those occupations pupils’ were interested in, often had “insider” information regarding the realities of the career. As one pupil indicated, *“but the best reason why I want to be an engineer because my cousin is also an engineer; he always tell me what happen at work; that is why I know a lot of how to be an engineer”*.

Pupils’ knowledge of details related to becoming a teacher could have been influenced by their observations and interactions they have with the teachers teaching them. Their free-response compositions often reflect this. For example, one pupil noted that *“being a teacher is a big responsibility...we must have time to mark the paper and to remember their names”*. Another pupil also used the essay to debunk the myth of needing to shout to manage pupils – *“I don’t want to shout or scream at my students; many people hate teaching; they say that you need to shout a lot but I don’t think so”*. This exposure to the teaching profession has also provided pupils with fairly realistic awareness of some of the challenges facing teachers: *“but sometimes as a teacher it may be difficult to teach because pupils will not listen to what I say or may be they talked while I am talking or teaching”*, and *“teaching is not as easy as it sounds;*

teachers slog hard all day and part of the night trying to educate young pupils". Besides "teacher", pupils wanting to become a "violinist" or "dance teacher" were because of their teachers – *"I want to joint (sic) the Singapore Malay Orchestra and be on television like my violin teacher"* and *"my teacher's name is Mr Yu; he is very fit and he's size is big; he is from china and he is funny too"*. Hence besides the family, a significant adult in the child's life is also another strong influencing factor for their occupational preferences.

Pupils' Occupational Rejections

As mentioned in chapter three, the rejection of occupations was viewed as a separate career decision-making task from the selection of occupations. Gottfredson's theory of circumscription and compromise had mooted that sextype and prestige were two main factors that would influence pupils' rejection of possible occupations. In light of this, it would be expected that pupils' reasons for rejecting occupations would focus on these two primary factors.

The Singapore project found that the use of sex-typing to reject occupations was only amongst boys. The occupations - "dancer", and "flight attendant" were rejected because *"dancing is for girls"* and *"a flight attendant is usually women (sic)"*. Generally, girls did not use sex-type as a reason for rejecting occupations. In fact, it was the parents who were more concerned with sex-type than the pupil was. As mentioned in the previous chapter, a P6 Malay girl had considered becoming a soldier however it was her parents who felt that the occupation was unsuitable for girls. The reason then for rejecting an occupation was not because of sex-type but more in terms of being obedient and filial to one's parents.

Amongst the variety of reasons which pupils had provided for rejecting occupations, prestige was cited primarily for "cleaner" and "construction worker". Some examples of responses included:

"it is not a respectable job", "it is an embarrassing (sic) job to do as the rating of the job is very very low",
"I do not like being insulted, being a cleaner".

“my relative might saw me cleaning toilet and say bad words about me” (sic)

These reasons cited by pupils in the survey reflected their awareness of the social view that others held of particular occupations. As Gottfredson had noted in her theory, the budding social awareness of these young pupils would gradually reflect the social valuation exhibited by adults.

Other overarching reasons, however, focused either on the work environment and/or primary work tasks associated with the occupations. Many pupils perceived that cleaners only worked primarily in toilets, and these places were generally perceived as being very unclean and unhygienic. For occupations like “greengrocers” and “fishmongers”, lower primary pupils had indicated that *“I don’t want to sell vegetables”* and *“I don’t want to sell fish”*. As no other elaboration was provided, it was not known whether pupils’ rejection of these occupations was also influenced by the work environment. For instance, both “greengrocers” and “fishmongers” generally worked in wet markets, which are wet and smelly. The term “wet market” is a Singaporean one and refers to an “open market”.

It was found that pupils also rejected occupations where the activities were linked with illegal and/or immoral activities. So, occupations like “bar-tender”, “gambler”, and “conman” were rejected. Two pupils also highlighted ethnic and religious reasons for rejecting “bar-tender” – *“Malay cannot touch any alcoholic drinks”*, and *“I am god’s child and I do not want to be a drunkard”*. These findings reflected the findings of the 1991 study on occupational prestige in Singapore conducted by Chiew, Ko, & Quah, which was mentioned earlier. They had found that “lowest rated occupations are related to illegal or morally unacceptable activities, followed by jobs in the service sector” (p.44). Thus jobs like “smuggler”, “prostitute”, and “bargirl” had much lower ratings than even “road sweeper” (Chiew et.al, 1991, p.45).

Summary

The first research question that this project answered focused on similarities and differences held by pupils of different ages regarding gender and social stereotypes. The findings showed that there were distinct

differences between younger and older pupils' beliefs regarding gender and social class differences. Younger pupils tended to hold more traditional views than their older counterparts, especially for concrete elements of gender and social class stereotypes. Examples of concrete elements were physical appearances, gender-type activities, transportation, accommodation, clothing, sports, and eating outlets. This then confirmed Gottfredson's theory that younger pupils' gender and social class development were more influenced by concrete elements than abstract elements. The acceptance by older pupils of more abstract elements of gender and social class stereotypes was seen by their reflecting less conservative views for concrete elements. In addition, older pupils – with their cognitive maturity – also appeared to be more liberal regarding gender-type activities and thus, may not be as influenced by sextype factors as hypothesized by Gottfredson.

When Singaporean pupils' gender and social class stereotypes were applied to selected occupations, the findings showed that pupils' sextype and prestige perceptions differed from Gottfredson's theory. The most important or prestigious occupation from the Singapore sample was not "doctor" (a gender-neutral, investigative occupation) but "fire-fighter" (a masculine, realistic occupation), while "cleaner" was ranked as the least important or prestigious occupation. Pupils from the Singapore sample had also ranked "flight attendant" (a gender-neutral occupation) beneath "construction worker" (a masculine occupation). Gottfredson's theory had found that masculine occupations had a wider range of prestige compared to feminine jobs; and "realistic" occupations were less prestigious than "investigative" jobs. Singaporean pupils' responses showed that they tended to view gender-neutral and feminine jobs with lower prestige than masculine jobs. They also viewed "realistic" occupations like "fire-fighter" as being more prestigious or important than "investigative" occupations like "doctor".

The second research question for this project aimed to determine the similarities and differences in occupational knowledge between younger and older pupils. Although the findings showed that older pupils knew more occupations than younger pupils, pupils' occupational knowledge – irrespective of age – was on average, about 10 times greater when an occupational list was

provided. When pupils had to list known occupations without the aid of an occupations list, they were able only to produce on average, between 3 to 5 occupations per person. The difference in occupational knowledge between younger and older pupils was marginal when pupils had to write down known occupations without the aid of an occupations list. A primary one pupil, who was from the lowest educational level, was able to list the second highest number of occupations. Upper primary pupils also did not necessarily have an advantage over younger pupils in terms of listing sophisticated occupations. This then appeared to support Gottfredson's circumscription principle that a pupil's cognitive abilities had greater influence on his/her occupational knowledge than the pupil's chronological age.

The last three remaining research questions:

1. In what ways were the occupational preferences of lower primary pupils similar and/or different from those of upper primary pupils? Were there differences and/or similarities between boys and girls?
2. Were the occupations rejected by girls similar or different from the occupations rejected by boys? What about occupational rejections between younger and older pupils?
3. Were Gottfredson's gender and social class elements the only factors that influenced pupils' occupational selection and rejection? Or did Singaporean pupils have other important factors that influenced their occupational selection and rejection?

aimed to investigate occupational preferences and rejections between older and younger pupils as well as between boys and girls; and to determine the factors – other than sex-type and prestige – that influenced pupils' occupational preferences. It was found that:

- (1) the differences in the occupational preferences of younger and older pupils centred on the quantity of occupational preferences cited (i.e. older pupils had more preferences), the occupational groupings these preferences were classifiable in SSOC 2000 (i.e. older pupils' preferences were primarily "professionals" and/or "associate professionals"), and the anomaly between younger and older pupils' occupational preferences which ran counter to Gottfredson's stages

of occupational development (i.e. older pupils had indicated more occupational preferences that were non-realistic and unclassifiable into occupational groupings).

- (2) Male and female differences in occupational preferences were best reflected by boys-only and girls-only occupational groupings – “cleaners, labourers & related workers” and “clerical workers” respectively. It was also seen that only boys selected occupations that were associated with sports (e.g. “coach”, “soccer player”, “umpire”). Girls, on the other hand, had more occupational preferences from occupational groupings 2 (“professionals”) and 3 (“associate professionals”).
- (3) Amongst the supporting reasons that pupils had provided for their occupational preferences, prestige – and its variants of material gains, fame, and power – were influential factors for both boys and girls. This then was aligned with Gottfredson’s prestige-dimension.
- (4) Two other factors that influenced Singapore pupils’ occupational preferences were altruism and the influence of parents. Altruism, which referred to the quality of wishing to help others with little thought of repayment, was primarily cited by pupils who preferred caring professions like “doctor” and “nurse”. Parental influence was also found to be another factor to influence pupils’ occupational preferences.
- (5) Gottfredson’s factors of sex-type and prestige were more clearly influencers for pupils’ occupational rejections. Many pupils rejected occupations like “cleaner”, “maid”, and “servant” because *“it is not a respectable job”, “as the rating of the job is very, very low”, “I do not like to be ordered around”, and “we study hard and we could find another job”*. It was also found that sextype was more important for boys than for girls. For example, boys rejected occupations like “dancer” and “flight attendant” citing reasons like *“dancing is for girls”* and *“a flight attendant is usually women”*.
- (6) Pupils also rejected occupations that society considered illegal and/or immoral. Examples included “burglar”, “conman” and “gambler”. It

appeared that for Asian pupils, moral and legal factors were equally strong influencers as sex-type and prestige.

In conclusion, it was found that Gottfredson's sextype and prestige factors were greater influence on pupils' occupational rejections than preferences. In addition, the Singapore sample also revealed that altruism, parental influence, and moral and legal factors were equally strong influencers on pupils' occupational preferences and rejections.

CHAPTER SIX

Conclusion

The workplace faced by future entrants to the workforce could be characterised by constant change brought about by globalisation and technology. It would be essential that future entrants be well-instructed on how to meet these challenges. Current and future cohorts of primary school children would become these future workplace entrants. It had been suggested in chapter one that future work entrants develop skills that cover self-awareness, opportunity awareness, decision making, and transition management.

Adults often dismiss career guidance for pupils in primary schools because they feel that career development of children at this level had not yet begun and that children were too young to think about careers. The findings from this small Singaporean project revealed that primary school children have not only begun their career development but that these young children have also selected and rejected certain occupations even before they have had a more comprehensive understanding of occupations in general.

The implications of this descriptive study of Singapore primary schoolchildren would be discussed in terms of

1. their gender and social class stereotypes,
2. their occupational knowledge in terms of the quantity and quality of occupations that they were aware about
3. the future occupations these children selected and rejected, and
4. the supporting reasons these children provided for their selection and rejection of occupations

Singaporean Pupils' Gender and Social Class Stereotypes

As indicated in previous chapters, four facets of pupils' career development were explored in this research project: pupils' gender and social class stereotypes, their occupational knowledge, their occupational preferences and rejections, and the factors that appeared to influence their occupational preferences and rejections.

There were four subgroups comprising pupils' general beliefs regarding male-female differences. Of these, only two subgroups were significantly different between younger and older pupils: physical appearances and gender-type activities (i.e. those activities generally associated with a specific gender). Examples of concrete differences in physical appearances where younger children held more traditional beliefs were boys' hair lengths and the type of clothing boys could wear. For gender-type activities, it appeared that younger pupils were more inclined to believe that women could only do "feminine" activities (e.g. cooking) and men, "masculine" activities like "repair things".

The influence of tangible physical appearances in occupational preferences amongst younger pupils was seen in the supporting reasons these pupils provided for choosing particular occupations: a lower primary Indian girl had wanted to be a doctor because *"the doctors (sic) uniform is white and my favourite colour is white"*; another lower primary Chinese boy had wanted to become a policeman because *"I also like their uniform because my favourite colour is blue"*. The influence of colour on children's occupational preferences was not confined only to younger pupils.

The implications from these statistically significant differences in perception over concrete characteristics like physical appearances and activities of gender differences appeared to support Gottfredson's theory where lower primary children held more rigid gender stereotypical views than upper primary pupils. These rigid gender stereotypical views held by younger pupils might also imply that they would reject occupations that they felt were inappropriate for their gender. Gottfredson's theory of circumscription and compromise had indicated that occupational rejections were irreversible, which implied that these rejected occupations would not even be considered by older pupils. The findings, however, reflected considerable overlap in occupations rejected by both younger and older pupils. This appeared then to contradict Gottfredson's statement about the irreversibility of circumscription of occupations.

There were two subgroups comprising pupils' general beliefs for social class differences. The individual elements found in the two subgroups that comprised social class stereotypes were arranged from concrete to abstract.

Gottfredson's theory also emphasised a greater influence of concrete elements of prestige from lower primary (or younger) pupils than from upper primary (or older) pupils. The findings showed that lower and upper primary pupils had significantly different perceptions when it came to social class differences. Lower primary pupils imputed greater meaning to the visible trappings of prestige, while older pupils were less influenced by these trappings. Examples of reasons provided by lower primary pupils when rejecting occupations like "cleaner" and "servant" included the physical environment (*"very smelly and dirty"* and *"I do not want to wash toilet bowls"*) and visible mannerisms such as *"I do not like to be ordered around"* and *"I do not want to be like a dog"*).

Other visible trappings of prestige included transportation, accommodation, sporting activities, and speech. This again supported Gottfredson's observation that the development of social class stereotypes moved in tandem with age, and that upper primary pupils were less influenced by the visible trappings of prestige. In addition, Gottfredson had also observed that older pupils were also aware that openly acknowledging social class differences was not socially acceptable.

Although Gottfredson's theory did not take into consideration differences between boys and girls, the findings from this Singapore study showed that boys' occupational preferences were more influenced by sextype than girls' occupational preferences. For example, the only subgroup of gender stereotype that held statistically significant differences between boys and girls was "gender-type subjects" (i.e. "masculine" and "feminine" subjects). It was also found that boys believed that they were better for "masculine" subjects than girls were. This finding where boys held more traditional views than girls was supported by a 1990 study conducted by Lummis and Stevenson cited in chapter five. A Singapore study – cited in chapter two - also found that girls were more willing to consider cross-gender occupations than boys. Boys' traditional belief that they were better for "masculine" subjects as compared to girls translated into their responses for occupational rejection where they rejected occupations like "flight attendant" and "dancer" because boys felt that these were more suitable for girls. Implications of the above findings for the design of future career activities would be to help boys overcome their

traditional perceptions regarding occupations like “dancer”, “flight attendant”, and “nurse”. This could be done by having males working in these occupations to share their experiences and show that they did not lose their masculinity when they worked in these areas. In addition, stories featuring male characters in “feminine” occupations could also be used in discussion groups for future career lessons.

Other implications of the above findings include helping younger pupils develop an awareness of the dignity of labour: that all work that is legal and moral are important and have worth regardless of how society viewed these occupations. An example for a lesson could include asking pupils to draw pictures of how streets and toilets would look like should there be no cleaners at all to do the work, or asked to discuss in groups what would happen if there were no construction workers to build their flats or houses. These career lessons can help pupils correct their social class stereotypes regarding the physical appearance of workers and work environment of certain occupations, or the masculine-feminine work tasks of other occupations.

Singaporean Pupils’ Occupational Knowledge

The findings discussed in the preceding two chapters showed that pupils’ occupational knowledge – on average – was about 10 times more when an occupational list was provided than when pupils had to write occupations they knew without the aid of a list. Of the total 149 occupations that were listed by pupils: 23 occupations were cited only by lower primary pupils, 89 occupations only by upper primary pupils, and 37 occupations by both lower and upper primary pupils. This implied that Singaporean primary pupils do not have a ready vocabulary of occupations and this could be due to career education not being proactively emphasised in primary schools.

When it came to classifying pupils’ listed occupations using the classifications found in the SSOC 2000, it was found that older pupils were able to list occupations that required higher skill levels than younger pupils. The higher skilled occupational groupings were “professionals” and “associate professionals”. In addition, older pupils were also able to list occupations that the SSOC 2000 classified as “legislators, senior officials, and managers”. In

contrast, younger pupils' occupations tended to be classified in groupings that required lower level skills such as "plant and machine operators and assemblers" and "cleaners, labourers and related workers".

It appeared then, that older pupils' cognitive maturity and experience had provided them with occupational knowledge that included the educational or skill levels associated with the occupations. In contrast, younger pupils were less aware of the influence of educational and skill levels on occupations. These findings appeared to imply that younger pupils need to be taught about the relationship between skill levels, educational qualifications and occupations. Older pupils' career lessons could focus more on the accuracy of these educational and skill requirements in relation to occupations. Older pupils could also be taught about how occupations can be classified. The SSOC 2000 was only one method. Career activities could also be designed so that pupils from all levels in the primary school could gain an "awareness of the relationship between school and work, (and that) the skills and habits required to succeed in school also apply to the workplace" (PGSB, 2004, p. 9). Examples of habits that pupils can learn to succeed in school include amongst others, diligence and punctuality.

Gottfredson's theory had indicated that an individual's "zone of acceptable alternatives" (ZOAA) – or those occupations that the individual considered are acceptable for him/her – was drawn from the cognitive map of occupations. For this research, all sample pupils' occupational knowledge acted as proxy for the cognitive map of occupations, while pupils' occupational selections acted as proxy for the ZOAA.

Singaporean pupils' cognitive map of occupations then contained a total of 205 occupations. As mentioned in chapter four, this total number of 205 occupations comprised the eight occupations used in part B of the survey questionnaire, 48 occupations from part C of the survey questionnaire, and 149 occupations that all pupils in the sample were able to list (without any assistance).

Chapter five had compared Singaporean pupils' total of 205 occupations with the total of 314 occupations written by Australian children of similar ages from the study by McMahon, Carroll & Gillies (2001). One possible factor as

mentioned in the previous chapter, that led to this quantitative difference in occupational knowledge was the absence of career education lessons for Singaporean pupils. The implication from this comparative finding has strengthened the need for career education for Singapore primary school children, especially in exposing them to as wide a variety of occupations as possible.

The crude proxy for ZOAA was the total of 89 occupations (or 43.4%) selected by all the pupils in the sample. This was about less than half of the total occupations found in the cognitive map of occupations.

Implications of the above findings for career activities for primary school children include exposing them to as many occupations as possible, and helping them learn about the work tasks, environment, use of special tools, wearing of uniforms associated with the occupations. As mentioned above, relating these occupations to their requisite educational qualifications and skills would also help pupils understand the link between school and work. In addition, older pupils who make decisions about occupations based on superficial reasons like the colour of the uniform or vehicle, can be helped to realise that an occupation comprises more than just the colour of the uniform or vehicle.

Singaporean Pupils' Occupational Preferences and Rejections

As discussed in the previous two chapters, the findings on pupils' occupational preferences and rejections had shown that between Gottfredson's sextype and prestige factors, prestige was a stronger influence than sextype. Sextype, as mentioned later in this chapter, only appeared to influence male pupils' occupational rejections rather than preferences.

Although there were eight factors that appeared to influence pupils' occupational preferences, three of these eight factors were variants of Gottfredson's prestige factor. These were material gains, fame, and power. Material gains were often related to occupations found in higher-skilled professions like "doctor", "engineer", "lawyer" and/or "vet". Fame was associated with occupations in the performing and entertainment industries. Power often appeared as the influencing factor for occupations either in the

uniformed services like the police and the armed forces, or the principal of a school.

Besides prestige, an unusual factor that survey findings showed influenced pupils' occupational preferences was "altruism" – the unselfish concern for the good of others. This factor was generally associated with the healthcare professions like "doctor" and "nurse". Other occupations where pupils indicated had indicated altruistic reasons included "lawyer" (*"I want to fight for justice for the innocent person"*) and "author" (*"I want every Singaporean to read books and improve their language"*). The factor of altruism could have been influenced by the teaching of Civics and Moral Education (CME) to all primary school children. CME is a compulsory subject in all Singapore primary and secondary schools. An implication for this finding could be the extension of CME to include the teaching of ethics, and its application in various contexts such as the workplace, in school, and in one's interactions with others. In light of debacles like Enron in the United States, it would be important that pupils realise the need for integrity and ethics whether at home, school, or in the workplace.

Other factors that influenced pupils' occupational preferences included their personal interests and abilities, and parental influence. Given that the pupils for this research project were still in primary school, it was not surprising that the role of the family featured as a strong factor in their occupational decisions.

Implications for career activities could include pupils discovering their interests, abilities and aptitudes and linking them to related occupations. In this way, pupils can realise that interests, aptitudes and abilities are just the starting point and there would be need to pursue related educational qualifications or skills training if they wish to enter occupations that match their abilities and aptitudes.

The lack of these variants of prestige (i.e. material gain, fame, and power) was often the reasons cited for rejecting certain occupations. However, the findings revealed that the desire for higher remuneration was not for pupils' own use (i.e. a self-centred reason), but as a means to help out in the pupils' family's financial circumstances and/or the support of pupils' parents. Again,

this focus on others appeared to be unique for this Singaporean sample of pupils as the literature reviews conducted in chapter two did not yield such findings.

As mentioned earlier in this chapter, boys were more conservative in their gender beliefs compared to girls, and sextype was only used as supporting reasons by them for rejecting those occupations they perceived as being more suitable for women. This lack of influence of sextype amongst girls in occupational preferences had been supported by Singaporean studies reviewed in chapter two, which indicated that girls were more willing to consider cross-gender occupations. The factors mentioned in the studies included well-educated mothers and the female pupils themselves being high-achieving. The lack of sextype as an influence for rejecting occupations might be attributed to Singapore's emphasis on meritocracy, where everyone is encouraged to work hard and do the best they can irrespective of their gender, ethnicity or social background. Gottfredson's theory where sextype would influence pupils to circumscribe their occupational preferences did not appear to have much impact amongst Singaporean pupils, except for a few boys.

Besides sextype and prestige, an unusual factor that influenced pupils' occupational rejections was moral and legal reasons. Examples of reasons provided were *"I will not cheat anyone"* for "conman", and *"I will not make others ill"* for "drug seller". Examples of moral reasons provided for rejecting becoming a bar-tender were *"Malay cannot touch any alcoholic drinks"* and *"I am god's child and I do not want to be a drunkard"*. The moral and legal factors appeared to be the diametric opposite of the altruism factor used for occupational preferences.

Although this Singapore research project appeared to support Gottfredson's theory only in part, the project also revealed that the influence of altruistic, moral and legal factors in occupational decision-making was equally important. This could be further explored in follow-up research.

Other Observations

This small research project differed from the other studies reviewed in chapter two in that pupils from all levels in primary school were included in the

research sample. This might possibly be the first local study to include pupils starting from primary one up to primary six as the other Singaporean study focused only on pupils in primary four. A study conducted in Australia had focused on the older primary school child (i.e. sixth grade pupils). Other Singaporean and overseas research had tended to investigate the career development of either teenagers or adults.

Limitations

This research project explored pupils' occupational awareness primarily through pupils' recognition of occupations (by circling known occupations from a given list) and having them write down additional known occupations. The project did not delve deeply into pupils' occupational knowledge by having them describe the work tasks and educational requirements for each of their known occupations. Pupils' understanding of the occupations' work tasks and other characteristics of the occupations were gleaned indirectly through pupils' supporting reasons for their occupational preferences and rejections. For example, all pupils knew that artists' main work was in the arts and people who pursued these occupations needed to have skills and interests in drawing, or painting. Similarly, pupils were aware that authors required interests and abilities to write stories and/or poetry. A more direct approach could have been taken to obtain information regarding pupils' occupational knowledge.

The individual statements found in Part A of the survey questionnaire, which explored pupils' general beliefs about gender and social class differences, would need to be validated so that a survey instrument exploring pupils' gender and social class stereotypes could be developed.,

Future Follow-up

One follow-up would be to broaden the research sample to include pupils from other government schools, government-aided schools, and single-sex schools. In addition, primary schools can also be selected from each of the four zones of the island. Data from this broad study would then enable comparisons between different ethnic groups (i.e. Chinese, Malay, Indian, and others) to be done.

Another follow-up study could involve the 205 occupations that comprised this sample's cognitive map of occupations. Pupils from primary one to six could determine for each of the 205 occupations whether the work could be done by "men only", "women only" or "both men and women". Pupils would also be asked to rate the importance of each of 205 occupations.

An additional follow-up study for these 205 occupations could have pupils from all levels in a primary school describe the work tasks, work environment, work tools, work uniform, and educational qualifications for each occupation. By doing this, a deeper understanding of pupils' occupational knowledge could be gained. The findings of this follow-up study could then be used to develop teaching materials and activities that could be used in future career education lessons. A study could then be organised to trial and evaluate the effects of these lessons on pupils' career development.

Another possible follow-up study would be to discover the sources where pupils learnt about various occupations. A related study to sources of pupils' occupational knowledge could focus on the influence of parents on pupils' occupational decisions. As mentioned earlier, children in primary school depend a great deal on their families. It would be important that future career activities be designed to include the involvement of parents and other significant adults (e.g. relatives and/or friends).

Summary

This small Singapore study was a modest attempt to describe the career development of primary pupils. Contrary to adult beliefs, primary school children have already begun their career development. The career development of these young children unfortunately has included rejecting certain occupations even before they have acquired a thorough knowledge and understanding of these occupations. This was especially noticeable amongst boys than girls. For too long, career guidance in primary schools have been ignored, and not strongly emphasised as in the secondary schools. With change being a constant characteristic of the future workplace, and manpower, the only resource for a small city-state like Singapore, it has become essential that Singapore primary schools be convinced of the importance of career

guidance for their charges. This then would enable primary schools to implement career activities not in an ad-hoc manner but in a developmental way so that primary school children would acquire the necessary knowledge, skills and attitudes in the areas of self-awareness, opportunity awareness, decision learning, and transition learning.

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APPENDICES

ID Number: _____

Appendix 3-1

Level: _____

SURVEY ON PUPILS IN A SINGAPORE GOVERNMENT PRIMARY SCHOOL

Introduction

The purpose of this survey is to learn as much as possible about the occupational awareness and understanding of pupils in a Singapore government primary school. All information given by you will be kept strictly confidential and will be used for statistical purposes only.

Part A

Instructions:

- This is not a test and there is no right or wrong answer.
- Please do not discuss answers with your classmates.
- For each sentence listed below, decide whether the sentence is true or false.
 Colour only ONE bubble.

		True	False			True	False
1.	Women can only wear dresses and skirts	<input type="radio"/>	<input type="radio"/>	11.	Men like subjects such as Mathematics and Science	<input type="radio"/>	<input type="radio"/>
2.	Men cannot wear dresses and skirts	<input type="radio"/>	<input type="radio"/>	12.	Women do not like subjects such as Mathematics and Science	<input type="radio"/>	<input type="radio"/>
3.	Women cannot wear trousers and shorts	<input type="radio"/>	<input type="radio"/>	13.	Men will score high marks for Mathematics and Science	<input type="radio"/>	<input type="radio"/>
4.	Men can only wear trousers and shorts	<input type="radio"/>	<input type="radio"/>	14.	Women will not score high marks for Mathematics and Science	<input type="radio"/>	<input type="radio"/>
5.	Women can only keep long hair	<input type="radio"/>	<input type="radio"/>	15.	Women like subjects such as English and Mother Tongue	<input type="radio"/>	<input type="radio"/>
6.	Men can only keep short hair	<input type="radio"/>	<input type="radio"/>	16.	Men do not like subjects such as English and Mother Tongue	<input type="radio"/>	<input type="radio"/>
7.	Women cannot keep short hair	<input type="radio"/>	<input type="radio"/>	17.	Women will score high marks for English and Mother Tongue	<input type="radio"/>	<input type="radio"/>
8.	Men cannot keep long hair	<input type="radio"/>	<input type="radio"/>	18.	Men will not score high marks for English and Mother Tongue	<input type="radio"/>	<input type="radio"/>
9.	Women must learn how to cook	<input type="radio"/>	<input type="radio"/>	19.	Rich people can afford to own cars	<input type="radio"/>	<input type="radio"/>
10.	Men do not need to learn how to cook	<input type="radio"/>	<input type="radio"/>	20.	Poor people cannot afford to own cars	<input type="radio"/>	<input type="radio"/>

		True	False			True	False
21.	Men know how to repair things that are broken	<input type="radio"/>	<input type="radio"/>	37.	Poor people normally travel by bus or MRT	<input type="radio"/>	<input type="radio"/>
22.	Women do not know how to repair things that are broken	<input type="radio"/>	<input type="radio"/>	38.	Rich people normally travel by car or taxi	<input type="radio"/>	<input type="radio"/>
23.	Women do housework	<input type="radio"/>	<input type="radio"/>	39.	Rich people live in houses	<input type="radio"/>	<input type="radio"/>
24.	Men do not do housework	<input type="radio"/>	<input type="radio"/>	40.	Poor people live in flats	<input type="radio"/>	<input type="radio"/>
25.	Men know how to pump petrol into the car	<input type="radio"/>	<input type="radio"/>	41.	Rich people wear expensive clothes	<input type="radio"/>	<input type="radio"/>
26.	Women do not know how to pump petrol into the car	<input type="radio"/>	<input type="radio"/>	42.	Poor people do not wear expensive clothes	<input type="radio"/>	<input type="radio"/>
27.	Men can take up sports like soccer and basketball	<input type="radio"/>	<input type="radio"/>	43.	Rich people play golf	<input type="radio"/>	<input type="radio"/>
28.	Women cannot take up sports like soccer and basketball	<input type="radio"/>	<input type="radio"/>	44.	Poor people do not play golf	<input type="radio"/>	<input type="radio"/>
29.	Men are strong	<input type="radio"/>	<input type="radio"/>	45.	Rich people eat in restaurants	<input type="radio"/>	<input type="radio"/>
30.	Women are weak	<input type="radio"/>	<input type="radio"/>	46.	Poor people eat in hawker centres	<input type="radio"/>	<input type="radio"/>
31.	Men are untidy	<input type="radio"/>	<input type="radio"/>	47.	Rich people speak English well	<input type="radio"/>	<input type="radio"/>
32.	Women are tidy	<input type="radio"/>	<input type="radio"/>	48.	Poor people do not speak English well	<input type="radio"/>	<input type="radio"/>
33.	Men are not gentle	<input type="radio"/>	<input type="radio"/>	49.	Rich people are polite	<input type="radio"/>	<input type="radio"/>
34.	Women are gentle	<input type="radio"/>	<input type="radio"/>	50.	Poor people are rude	<input type="radio"/>	<input type="radio"/>
35.	Men are clever	<input type="radio"/>	<input type="radio"/>	51.	Rich people do important work	<input type="radio"/>	<input type="radio"/>
36.	Women are not clever	<input type="radio"/>	<input type="radio"/>	52.	Poor people do not do important work	<input type="radio"/>	<input type="radio"/>

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		True	False			True	False
53.	Men do not cry	<input type="radio"/>	<input type="radio"/>	57.	Rich people are clever	<input type="radio"/>	<input type="radio"/>
54.	Women cry easily	<input type="radio"/>	<input type="radio"/>	58.	Poor people are not clever	<input type="radio"/>	<input type="radio"/>
55.	Men do important work	<input type="radio"/>	<input type="radio"/>				
56.	Women do not do important work	<input type="radio"/>	<input type="radio"/>				

Part B

Instructions:

- a) This is not a test and there is no right or wrong answer.
- b) Please do not discuss answers with your classmates.
- c) Please shade only one circle for each occupation
- d) For each occupation listed below, decide whether the work can be done by men only, by women only, or by both men and women.

Occupation	Men Only	Women Only	Both Men & Women
Cleaner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Construction Worker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fire-fighter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flight attendant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pilot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teacher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Instructions:

- a) This is not a test and there is no right or wrong answer.
- b) Please do not discuss answers with your classmates.
- c) Please shade only one circle for each occupation
- d) For each occupation listed below, give the mark that you think shows how important each occupation is:

Rating scale: 1 = very unimportant 2 = unimportant
 3 = important 4 = very important

Occupation	1 Very Unimportant	2 Unimportant	3 Important	4 Very Important
Cleaner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Construction Worker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fire-fighter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flight attendant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pilot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teacher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part C

Instructions:

a) In the box below, circle ALL the occupations that you know.

Artist	Author	Baker	Butcher
Barber	Bar-tender	Chef	Carpenter
Clerk	Cashier	Dentist	Detective
Designer	Engineer	Electrician	Florist
Gardener	Hawker	Housekeeper	Inspector
Jockey	Judge	Kitchen assistant	Lorry driver
Librarian	Lawyer	Mechanic	Manager
Newsvendor	Optician	Principal	Plumber
Reporter	Referee	Receptionist	Shop-keeper
Sailor	Servant	Security Guard	Telephone operator
Technician	Tailor	Usher	Umpire
Vice-Principal	Veterinarian	Writer	Zookeeper

Instructions:

b) In the table below, write down other occupations that you know which are NOT listed in the box above. Please do this in alphabetical order (i.e. starting with 'A' etc)

Instructions

- c) From all the occupations that you know listed on page 6, copy 5 occupations that you would do when you grow up into the table below.
- d) For each occupation, give reasons why you would do these jobs.

<i>Occupations I would choose to do when I grow up</i>	<i>My reasons for choosing this occupation</i>
1.	
2.	
3.	
4.	
5.	

Instructions

- e) From all the occupations that you know listed on page 6, copy 5 occupations that you would NOT do when you grow up into the table below.
- f) For each occupation, give reasons why you would not do these jobs.

<i>Occupations I would NOT choose to do when I grow up</i>	<i>My reasons for NOT choosing this occupation</i>
1.	
2.	
3.	
4.	
5.	

Part D Tell me about yourself

1. Are you a: *(please put a tick ✓ in one box)*
☐ Girl ☐ Boy
2. How old are you as at 1 Jan 2003?
 _____ years _____ months
3. Are you a:
☐ Chinese ☐ Malay
☐ Indian ☐ Eurasian
☐ Others: _____
4. What level are you now in?
☐ Primary 1 ☐ Primary 2
☐ Primary 3 ☐ Primary 4
☐ Primary 5 ☐ Primary 6
5. What stream are you in?
☐ EM1 ☐ EM2
☐ EM3 ☐ Not applicable

Part E: Tell me about your family

6. How many brothers and sisters do you have and what are they doing?
(complete the table by using numbers and words)

Siblings	How many?	How old are they?	Are they studying?	Are they working? If yes, please give occupation
Brother(s)				
Sister(s)				

7. What is your father's highest educational level? *(please tick ✓ only one box)*
☐ Completed Primary School ☐ GCE O level certificate
☐ GCE A level certificate ☐ Polytechnic diploma
☐ University degree ☐ I don't know

8. What is your mother's highest educational level? (please tick ✓ only one box)
- | | |
|---------------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> Completed Primary School | <input type="checkbox"/> GCE O level certificate |
| <input type="checkbox"/> GCE A level certificate | <input type="checkbox"/> Polytechnic diploma |
| <input type="checkbox"/> University degree | <input type="checkbox"/> I don't know |
9. What is your father's occupation:

10. What is your mother's occupation:

11. What type of house do you live in? (please tick ✓ only one box)
- | | |
|-----------------------------------------------------|---------------------------------------------------|
| <input type="checkbox"/> HDB 1-room flat | <input type="checkbox"/> HDB 2-room flat |
| <input type="checkbox"/> HDB 3-room flat | <input type="checkbox"/> HDB 4-room flat |
| <input type="checkbox"/> HDB 5-room flat | <input type="checkbox"/> HDB Executive Apartments |
| <input type="checkbox"/> Private Condominium / Flat | <input type="checkbox"/> Terrace House |
| <input type="checkbox"/> Semi-detached house | <input type="checkbox"/> Bungalow |
| <input type="checkbox"/> Others: _____ | |
12. Which language do you speak most frequently at home? (please tick ✓ only one box)
- | | |
|-------------------------------------------------------------------------|-----------------------------------|
| <input type="checkbox"/> English | <input type="checkbox"/> Mandarin |
| <input type="checkbox"/> Malay | <input type="checkbox"/> Tamil |
| <input type="checkbox"/> Other Chinese dialects (please specify: _____) | |
| <input type="checkbox"/> Other Indian dialects (please specify: _____) | |
| <input type="checkbox"/> Others languages (please specify: _____) | |

😊😊😊 THANK YOU VERY MUCH FOR YOUR CO-OPERATION 😊😊😊

ID Number: _____
Level: _____

Write a composition on “What occupation I would like to do when I grow up, and why”.

ID Number: _____
Level: _____

Write a composition on “What occupation I would like to do when I grow up, and why”.

ID Number: _____

Appendix 3-1-2

Level: _____

Write a composition on “What occupation I would like to do when I grow up, and why”.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

DRAFT SURVEY ON SINGAPOREAN PRIMARY PUPILS

Introduction

The purpose of this survey is to learn as much as possible about the occupational awareness and understanding of primary school pupils. All information given by you will be kept strictly confidential and will be used for statistical purposes only.

Part A*Instructions:*

- a) This is not a test and there is no right or wrong answer.
- b) Please do not discuss answers with your classmates.
- c) Please shade only one circle for each sentence
- d) For each sentence listed below, decide whether the sentence is true or false

	True	False
1. Women can only wear dresses and skirts	<input type="radio"/>	<input type="radio"/>
2. Men cannot wear dresses and skirts	<input type="radio"/>	<input type="radio"/>
3. Women cannot wear trousers and shorts	<input type="radio"/>	<input type="radio"/>
4. Men can only wear trousers and shorts	<input type="radio"/>	<input type="radio"/>
5. Women can only keep long hair	<input type="radio"/>	<input type="radio"/>
6. Men can only keep short hair	<input type="radio"/>	<input type="radio"/>
7. Women cannot keep short hair	<input type="radio"/>	<input type="radio"/>
8. Men cannot keep long hair	<input type="radio"/>	<input type="radio"/>
9. Women must learn how to cook	<input type="radio"/>	<input type="radio"/>
10. Men do not need to learn how to cook	<input type="radio"/>	<input type="radio"/>
11. Men know how to repair things that are broken	<input type="radio"/>	<input type="radio"/>
12. Women do not know how to repair things that are broken	<input type="radio"/>	<input type="radio"/>
13. Women do housework	<input type="radio"/>	<input type="radio"/>
14. Men do not do housework	<input type="radio"/>	<input type="radio"/>
15. Men know how to pump petrol into the car	<input type="radio"/>	<input type="radio"/>
16. Women do not know how to pump petrol into the car	<input type="radio"/>	<input type="radio"/>
17. Men can take up sports like soccer and basketball	<input type="radio"/>	<input type="radio"/>
18. Women cannot take up sports like soccer and basketball	<input type="radio"/>	<input type="radio"/>
19. Men do important work	<input type="radio"/>	<input type="radio"/>
20. Women do not do important work	<input type="radio"/>	<input type="radio"/>
21. Men are strong	<input type="radio"/>	<input type="radio"/>
22. Women are weak	<input type="radio"/>	<input type="radio"/>
23. Men are untidy	<input type="radio"/>	<input type="radio"/>
24. Women are neat	<input type="radio"/>	<input type="radio"/>
25. Men are rough	<input type="radio"/>	<input type="radio"/>
26. Women are gentle	<input type="radio"/>	<input type="radio"/>
27. Men are clever	<input type="radio"/>	<input type="radio"/>
28. Women are not clever	<input type="radio"/>	<input type="radio"/>
29. Men do not cry	<input type="radio"/>	<input type="radio"/>

		True	False
30.	Women cry easily	<input type="radio"/>	<input type="radio"/>
31.	Men like subjects such as Mathematics and Science	<input type="radio"/>	<input type="radio"/>
32.	Women do not like subjects such as Mathematics and Science	<input type="radio"/>	<input type="radio"/>
33.	Men will score high marks for Mathematics and Science	<input type="radio"/>	<input type="radio"/>
34.	Women will not score high marks for Mathematics and Science	<input type="radio"/>	<input type="radio"/>
35.	Women like subjects such as English and Mother Tongue	<input type="radio"/>	<input type="radio"/>
36.	Men do not like subjects such as English and Mother Tongue	<input type="radio"/>	<input type="radio"/>
37.	Women will score high marks for English and Mother Tongue	<input type="radio"/>	<input type="radio"/>
38.	Men will not score high marks for English and Mother Tongue	<input type="radio"/>	<input type="radio"/>
39.	Rich people can afford to own cars	<input type="radio"/>	<input type="radio"/>
40.	Poor people cannot afford to own cars	<input type="radio"/>	<input type="radio"/>
41.	Poor people normally travel by bus or MRT	<input type="radio"/>	<input type="radio"/>
42.	Rich people normally travel by car or taxi	<input type="radio"/>	<input type="radio"/>
43.	Rich people live in houses	<input type="radio"/>	<input type="radio"/>
44.	Poor people live in flats	<input type="radio"/>	<input type="radio"/>
45.	Rich people wear expensive clothes	<input type="radio"/>	<input type="radio"/>
46.	Poor people do not wear expensive clothes	<input type="radio"/>	<input type="radio"/>
47.	Rich people do important work	<input type="radio"/>	<input type="radio"/>
48.	Poor people do not do important work	<input type="radio"/>	<input type="radio"/>
49.	Rich people are clever	<input type="radio"/>	<input type="radio"/>
50.	Poor people are not clever	<input type="radio"/>	<input type="radio"/>
51.	Rich people speak English well	<input type="radio"/>	<input type="radio"/>
52.	Poor people do not speak English well	<input type="radio"/>	<input type="radio"/>
53.	Rich people play golf	<input type="radio"/>	<input type="radio"/>
54.	Poor people do not play golf	<input type="radio"/>	<input type="radio"/>
55.	Rich people eat in restaurants	<input type="radio"/>	<input type="radio"/>
56.	Poor people eat in hawker centres	<input type="radio"/>	<input type="radio"/>
57.	Rich people are polite	<input type="radio"/>	<input type="radio"/>
58.	Poor people are rude	<input type="radio"/>	<input type="radio"/>

Part B

Instructions:

- a) This is not a test and there is no right or wrong answer.
- b) Please do not discuss answers with your classmates.
- c) Please shade only one circle for each occupation
- d) For each occupation listed below, decide whether it can be done by men only, by women only, or by both men and women.

Occupation	Men Only	Women Only	Both Men & Women
Cleaner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Construction Worker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fire-fighter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flight attendant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pilot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teacher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Instructions:

- a) This is not a test and there is no right or wrong answer.
- b) Please do not discuss answers with your classmates.
- c) Please shade only one circle for each occupation
- d) For each occupation listed below, give the mark that you think shows how important each occupation is:

Rating scale: 1 = not important
 4 = very important

Occupation	1	2	3	4
Cleaner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Construction Worker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fire-fighter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flight attendant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pilot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teacher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part C

Instructions:

- a) In the box below, circle all the occupations that you know.
- b) On a separate piece of paper, write down other occupations that you know which are not listed in the box below.

Artist	Author	Baker	Butcher
Barber	Bar-tender	Chef	Carpenter
Clerk	Cashier	Dentist	Driver
Designer	Engineer	Electrician	Florist
Gardener	Hawker	Housekeeper	Inspector
Jockey	Judge	Kitchen assistant	Lorry driver
Librarian	Lawyer	Mechanic	Manager
Newsvendor	Optician	Principal	Plumber
Reporter	Referee	Receptionist	Shop-keeper
Sailor	Servant	Security Guard	Telephone operator
Technician	Tailor	Usher	Umpire
Vice-Principal	Veterinarian	Writer	Zookeeper

Instructions

- c) From the occupations that you know, copy 5 occupations that you would do when you grow up into the table below.
- d) For each occupation, give reasons for your choice.

<i>Occupations I would choose to do when I grow up</i>	<i>My reasons for choosing this occupation</i>
1.	
2.	
3.	
4.	
5.	

Instructions

- e) From the occupations that you know, copy 5 occupations that you would NOT do when you grow up into the table below.
- f) For each occupation, give reasons why you would not do these jobs.

<i>Occupations I would NOT choose to do when I grow up</i>	<i>My reasons for NOT choosing this occupation</i>
1.	
2.	
3.	
4.	
5.	

- g) Are there any other occupations that you know and not found in the box on page 5, that you would NOT choose to do when you grow up? Please list them in the box below and give reasons why you would NOT choose these jobs.

<i>Occupations, not found in table above, I would choose NOT o do when I grow up</i>	<i>My reasons for NOT choosing this occupation</i>
1.	
2.	
3.	
4.	
5.	

Part D **Tell me about yourself**

1. Are you a: (please put a tick ✓ in one box)
- | | | | |
|--------------------------|------|--------------------------|-----|
| <input type="checkbox"/> | Girl | <input type="checkbox"/> | Boy |
|--------------------------|------|--------------------------|-----|
2. How old are you as at 1 Jan 2003?
- | | | | |
|-------|-------|-------|--------|
| _____ | years | _____ | months |
|-------|-------|-------|--------|
3. Are you a:
- | | | | |
|--------------------------|---------------|--------------------------|----------|
| <input type="checkbox"/> | Chinese | <input type="checkbox"/> | Malay |
| <input type="checkbox"/> | Indian | <input type="checkbox"/> | Eurasian |
| <input type="checkbox"/> | Others: _____ | | |
4. What level are you now in?
- | | | | |
|--------------------------|-----------|--------------------------|-----------|
| <input type="checkbox"/> | Primary 1 | <input type="checkbox"/> | Primary 2 |
| <input type="checkbox"/> | Primary 3 | <input type="checkbox"/> | Primary 4 |
| <input type="checkbox"/> | Primary 5 | <input type="checkbox"/> | Primary 6 |
5. What stream are you in?
- | | | | |
|--------------------------|-----|--------------------------|----------------|
| <input type="checkbox"/> | EM1 | <input type="checkbox"/> | EM2 |
| <input type="checkbox"/> | EM3 | <input type="checkbox"/> | Not applicable |

Part E: Tell me about your family

6. How many brothers and sisters do you have and what are they doing? (complete the table by using numbers and words)

Siblings	How many?	How old are they?	Are they studying?	Are they working? If yes, please give occupation
Brother(s)				
Sister(s)				

7. What is your father's highest educational level? (please tick ✓ only one box)
- | | |
|---------------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> Completed Primary School | <input type="checkbox"/> GCE O level certificate |
| <input type="checkbox"/> GCE A level certificate | <input type="checkbox"/> Polytechnic diploma |
| <input type="checkbox"/> University degree | <input type="checkbox"/> I don't know |
8. What is your mother's highest educational level? (please tick ✓ only one box)
- | | |
|---------------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> Completed Primary School | <input type="checkbox"/> GCE O level certificate |
| <input type="checkbox"/> GCE A level certificate | <input type="checkbox"/> Polytechnic diploma |
| <input type="checkbox"/> University degree | <input type="checkbox"/> I don't know |
9. What is your father's occupation:

Part B*Instructions:*

- a) *There are no right or wrong answers*
b) *Fill in the blanks with a name for each of the people in the passage below.*

_____, a teacher and _____, a fire-fighter, were very good friends. They decided to go to Japan for a holiday. On the day they were leaving, they joked and sang as they drove to the airport. However, an accident happened. They knocked down _____, a construction worker who was doing some repair work on the roadside. They sent the construction worker to a hospital. A doctor, _____, and a nurse _____, attended to them. The doctor examined the construction worker carefully. They were happy to know that the construction worker was not hurt badly. They rushed to the airport where they saw _____, a cleaner. When they boarded the plane, the pilot, _____, and _____, a flight attendant, greeted them. Both the teacher and the fire-fighter enjoyed their holiday in Japan very much.

<Date>

Dear Parents

I refer to the cover letter from the Principal of the school. As part of my Masters' thesis, I would like to conduct a research study titled *Occupational Awareness of Singapore Primary School Pupils*. I hope that results from this study would highlight the occupational needs of primary pupils. These needs can be addressed in the development of suitable career education programmes.

2 I am writing to seek your permission in allowing your child to participate in this research study. His/her participation would involve the completion of a questionnaire that would provide information on:

- how primary school pupils develop their occupational self-awareness
- learn about occupations, and
- how self-awareness and occupational understanding interact to influence their occupational aspirations.

Should there be a need, your child may be required to also participate in an interview.

3 All information gathered in the survey would be kept strictly confidential and used only for statistical purposes. Please note that participation in the activity is totally voluntary. Should you have any questions on the research study, please do not hesitate to contact me either via email at [REDACTED] or via telephone at [REDACTED]

4 I would be grateful if you could complete the attached consent form and return it through your child/ward to his/her class teacher **latest by** (*date one week after letter is issued, to be inserted later*)

5 Thank you.

Yours sincerely

JOY ANG(MS)
GUIDANCE OFFICER
PSYCHOLOGICAL AND GUIDANCE SERVICES BRANCH
MINISTRY OF EDUCATION

CONSENT FORM
For
"Occupational Awareness of Singapore Primary School Pupils"

Purpose:

- To understand how primary school children learn and think about occupations.

Notes:

- Participation is totally voluntary and would not affect pupils' academic performance or grades.
- Pupils may be requested to either come early to school or stay back after school to complete the questionnaire. Selected pupils may be requested to come on another day for an interview that would not last more than one hour.
- All information collected would be kept strictly confidential and used only for statistical purposes, and for the research study.

I, Mr/Ms* _____ father / mother / guardian* hereby
(please provide your full name)

give / do not give* my consent to allow my child / ward* _____
(please provide name of child/ward)

to participate in the research project titled *Occupational Awareness of Singapore Primary School Pupils*.

Signature

Date

* please delete the inapplicable

Please return completed consent form through your child/ward to his/her form teacher latest by <i>(one week from date of letter, to be inserted later)</i>

CHARACTERISTICS OF GENDER AND SOCIAL CLASS STEREOTYPES

Gender Stereotypes: moving from concrete to more abstract understanding (36 statements)

Physical appearance (PA) (e.g. dressing, hair length etc) (8 statements)

1. Women can only wear dresses and skirts
2. Men cannot wear dresses and skirts
3. Women cannot wear trousers and shorts
4. Men can only wear trousers and shorts
5. Women can only keep long hair
6. Men can only keep short hair
7. Women cannot keep short hair
8. Men cannot keep long hair

Gender-specific Activities (GA) (10 statements)

9. Women must learn how to cook
10. Men do not need to learn how to cook
21. Men know how to repair things that are broken
22. Women do not know how to repair things that are broken
23. Women do housework
24. Men do not do housework
25. Men know how to pump petrol into the car
26. Women do not know how to pump petrol into the car
27. Men can take up sports like soccer and basketball
28. Women cannot take up sports like soccer and basketball

Perceived Interest & Competence in Gender-related Subjects (GS) (8 statements)

11. Men like subjects such as Mathematics and Science
12. Women do not like subjects such as Mathematics and Science
13. Men will score high marks for Mathematics and Science
14. Women will not score high marks for Mathematics and Science
15. Women like subjects such as English and Mother Tongue
16. Men do not like subjects such as English and Mother Tongue
17. Women will score high marks for English and Mother Tongue

18. Men will not score high marks for English and Mother Tongue

Personality Traits (PT) (10 statements. Originally there were 12 statements, but 2 statements were omitted in the collation of data)

- 29. Men are strong
- 30. Women are weak
- 31. Men are untidy
- 32. Women are tidy
- 33. Men are not gentle
- 34. Women are gentle
- 35. Men are clever
- 36. Women are not clever
- 53. Men do not cry (easily) – this statement was omitted during data collation as “easily” was left out.
- 54. Women cry easily – omitted feminine version during data collation
- 55. Men do important work
- 56. Women do not do important work

Social Class Stereotypes (Total of 20 statements)

Development of social class understanding: moving from concrete to abstract (this area covers many years)

- use of “rich” and “poor” to denote social class as these terms would be easily understood by primary school children.
- concrete areas covered types of transportation. As cars are very expensive in Singapore, this type of transportation may be perceived as a luxury good. Public transport would be more accessible to the population of the country.

Social Class Stereotype 1 (SC1 – comprising 12 statements classified into five sub-areas)*a) Transportation (4 Statements)*

19. Rich people can afford to own cars
20. Poor people cannot afford to own cars
37. Poor people normally travel by bus or MRT
38. Rich people normally travel by car or taxi

b) Accommodation (2 Statements)

39. Rich people live in houses
40. Poor people live in flats

c) Clothing (2)Statements

41. Rich people wear expensive clothes
42. Poor people do not wear expensive clothes

d) Sports (2 Statements)

43. Rich people play golf
44. Poor people do not play golf

e) Eating Outlets (2 Statements)

45. Rich people eat in restaurants
46. Poor people eat in hawker centres

Social Class Stereotype 2 (comprising 8 statements classified into two sub-areas)*f) Mannerisms in terms of speech, manners, (more abstract) (4 Statements)*

47. Rich people speak English well
48. Poor people do not speak English well
49. Rich people are polite
50. Poor people are rude

g) Occupational activities & Abilities (4 Statements)

51. Rich people do important work

- 52. Poor people do not do important work
- 57. Rich people are clever
- 58. Poor people are not clever

SUMMARISED CLASS SCHEDULE

Classes	Date & Times	Duration	Survey
Primary 1 (only one group)	5 June 03: 02:15 – 03:00 pm	45 minutes	Parts A & B
	04:15 – 05:00 pm	45 minutes	Parts C & D
	6 June 03: 02:15 – 02:45 pm	30 minutes	Half-page composition
Primary 2 (only one group)	5 June 03: 09:00 – 09:45 am	45 minutes	Parts A & B
	11:15 – 12:00 noon	45 minutes	Parts C & D
	6 June 03: 09:00 – 09:30 am	30 minutes	Half-page composition
Primary 3 (group 1): pupils 1 – 12	5 June 03: 01:15 – 02:00 pm	45 minutes	Parts A & B
	05:15 – 06:00 pm	45 minutes	Parts C & D
	6 June 03: 02:15 – 02:45 pm	30 minutes	Half-page composition
Primary 3 (group 2): Pupils 13 – 23 <i>(to come by 12 noon on 6 June 03)</i>	5 June 03: 03:15 – 04:00 pm	45 minutes	Parts A & B
	6 June 03: 12:15 – 01:00 pm	45 minutes	Parts C & D
	02:00 – 02:30 pm	30 minutes	Half-page composition
Primary 4 (group 1): pupils 1 – 12	5 June 03: 07:45 – 08:45 am	60 minutes	Parts A to D
	12:10 – 12:40 pm	30 minutes	One-page composition
Primary 4 (group 2): Pupils 13 – 25	5 June 03: 10:00 – 11:00 am	60 minutes	Parts A to D
	12:10 – 12:40 pm	30 minutes	One-page composition
Primary 5 (group 1): pupils 1 – 12	6 June 03: 02:30 – 03:30 pm	60 minutes	Parts A to D
	05:00 – 05:30 pm	30 minutes	One-page composition
Primary 5 (group 2): Pupils 13 – 24	6 June 03: 03:45 – 04:45 pm	60 minutes	Parts A to D
	05:00 – 05:30 pm	30 minutes	One-page composition
Primary 6 (group 1): pupils 1 – 15	6 June 03: 07:45 – 08:45 am	60 minutes	Parts A to D
	11:00 – 11:30 am	30 minutes	One-page composition
Primary 6 (group 2): Pupils 16 – 29	6 June 03: 09:45 – 10:45 am	60 minutes	Parts A to D
	11:00 – 11:30 am	30 minutes	One-page composition

Table 4-1-1: List of circled occupations for each pupil by educational level

	Educational Levels					
	P1	P2	P3	P4	P5	P6
	7	13	13	21	9	36
	12	24	18	30	33	39
	17	27	19	34	36	39
	18	33	27	34	37	39
	20	33	28	35	37	39
	21	35	32	35	38	40
	22	36	33	38	39	40
	22	36	33	39	40	40
	22	41	34	39	40	41
	22	44	34	39	42	42
	25	46	34	40	43	42
	25		34	41	43	42
	32		35	42	43	43
	37		36	42	44	43
			38	42	44	43
			38	44	45	43
			39	44	46	44
			40	45	46	44
			40	45	46	45
			41	45	46	45
			44	46	47	46
			45	46	47	46
			48	46		46
				48		47
						47
						48
						48
						48
						48
Total occupations circled for each level	302	368	783	960	891	1,253
Mean number of occupations circled by level	21.6	33.5	34.0	40.0	40.5	43.2

Note:
Each cell shows the occupations circled by each pupil in each educational level.

Summary tables displaying the distribution of lower and upper primary pupils' occupational knowledge for each of the four ranges:

Table 4-2-2: Distribution of Lower Primary Pupils' Responses

<i>Knowledge Range</i>	<i>1 – 12 jobs</i>	<i>13 – 24 jobs</i>	<i>25 – 36 jobs</i>	<i>37 – 48 jobs</i>	<i>Total</i>
<i>Level</i>					
P1	2	8	3	1	14
P2	0	2	6	3	11
P3	0	3	11	9	23
<i>Total</i>	<i>2 (4.1%)</i>	<i>13 (27.1%)</i>	<i>20 (41.7%)</i>	<i>13 (27.1%)</i>	<i>48 (100%)</i>

Table 4-2-3: Distribution of Upper Primary Pupils' Responses

<i>Knowledge Range</i>	<i>1 – 12 jobs</i>	<i>13 – 24 jobs</i>	<i>25 – 36 jobs</i>	<i>37 – 48 jobs</i>	<i>Total</i>
<i>Level</i>					
P4	0	1	5	18	24
P5	1	0	2	19	22
P6	0	0	1	28	29
<i>Total</i>	<i>1 (1.3%)</i>	<i>1 (1.3%)</i>	<i>8 (10.7%)</i>	<i>65 (86.7%)</i>	<i>75 (100%)</i>

Table 4-2-1: Total number of additional occupations written by each pupil for each educational level

	Educational Levels					
	P1	P2	P3	P4	P5	P6
	0	1	0	0	1	1
	0	1	0	0	1	1
	0	2	0	0	1	2
	0	2	0	1	1	2
	1	2	1	1	1	2
	1	2	1	1	1	2
	1	3	1	2	1	2
	1	4	1	2	1	3
	1	4	1	2	2	3
	2	5	2	2	2	3
	3	7	2	2	2	3
	5		2	2	2	3
	6		2	3	3	3
	17		2	3	3	3
			2	3	3	4
			2	3	4	4
			3	3	5	4
			3	3	6	5
			5	4	8	5
			5	5	9	5
			5	5	14	5
			6	5	16	6
			11	8		6
				9		6
						8
						11
						11
						12
						18
Total written occupations for each level	38	33	57	69	87	143
Mean number of written occupations by level	2.7	3.0	2.5	2.9	4.0	4.9

Note:
Each cell shows the additional occupations written by each pupil in each educational level.

Summary tables displaying the distribution of lower and upper primary pupils’ additional occupational knowledge for each of the four ranges:

Table 4-2-2: Distribution of Lower Primary Pupils’ Responses

<i>Knowledge Range</i> <i>Level</i>	<i>0 – 4 jobs</i>	<i>5 – 9 jobs</i>	<i>10 – 14 jobs</i>	<i>15 – 19 jobs</i>	<i>Total</i>
P1	11	2	0	1	14
P2	9	2	0	0	11
P3	18	4	1	0	23
<i>Total</i>	<i>38 (79.1%)</i>	<i>8 (16.7%)</i>	<i>1 (2.1%)</i>	<i>1 (2.1%)</i>	<i>48 (100%)</i>

Table 4-2-3: Distribution of Upper Primary Pupils’ Responses

<i>Knowledge Range</i> <i>Level</i>	<i>0 – 4 jobs</i>	<i>5 – 9 jobs</i>	<i>10 – 14 jobs</i>	<i>15 – 19 jobs</i>	<i>Total</i>
P4	19	5	0	0	24
P5	16	4	1	1	22
P6	17	8	3	1	29
<i>Total</i>	<i>52 (69.3%)</i>	<i>17 (22.7%)</i>	<i>4 (5.3%)</i>	<i>2 (2.7%)</i>	<i>75 (100%)</i>

List of Lower Primary Pupils' Written Occupations

- | | |
|-----------------------------------------------|------------------------|
| 1. Accountant | 49. Soccer player (3x) |
| 2. Actor / Actress (3x) ¹ | 50. Soldier (6x) |
| 3. Agent | 51. Taxi driver (8x) |
| 4. Air steward | 52. Toymaker |
| 5. Airforce | 53. Tuition teacher |
| 6. Antertainer (sic) | 54. TV presenter |
| 7. Astronaut (2x) | 55. Typist (2x) |
| 8. Babysitter | 56. Waiter |
| 9. Beautician (2x) | 57. Watch-maker |
| 10. Birdkeeper | |
| 11. Boss | |
| 12. Bus driver (7x) | |
| 13. Chief | |
| 14. Clown (3x) | |
| 15. Cobbler (3x) | |
| 16. Commander | |
| 17. Cook | |
| 18. Dancer | |
| 19. Dental nurse | |
| 20. Director (2x) | |
| 21. Explore[r] | |
| 22. Farmer | |
| 23. Fisher(sic) / Fisherman (2x) | |
| 24. Fishmonger (2x) | |
| 25. Fruit seller / Fruiterer | |
| 26. Gardener | |
| 27. Grass cutter | |
| 28. Green grocer / Grocer (3x) | |
| 29. Guard | |
| 30. Hairdresser (3x) | |
| 31. Health officer | |
| 32. Housewife | |
| 33. Illustrator (2x) | |
| 34. Instructor | |
| 35. Lifeguard (3x) | |
| 36. Magician | |
| 37. Maid (2x) | |
| 38. MRT driver | |
| 39. News reporter | |
| 40. Painter | |
| 41. Playwright | |
| 42. Police / Policeman / Police Officer(20 x) | |
| 43. Postman (3x) | |
| 44. Salesgirl | |
| 45. Scientist (4x) | |
| 46. Seamstress | |
| 47. Sergeant (sic) / Surgeon (2x) | |
| 48. Singner (sic) | |

¹ Numbers in brackets indicate the number of times different pupils wrote this occupation down.

List of Upper Primary Pupils' List of Written Occupations

- | | |
|--------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| 1. Accountant | 47. Diver |
| 2. Accounts executive | 48. Draughtsman |
| 3. Actor/Actress (9x) ¹ | 49. Driver (3x) |
| 4. Admin assistant | 50. Educator |
| 5. Advertizer | 51. Environmentist (sic) |
| 6. Agent | 52. Explorer |
| 7. Airforce | 53. Farmer (2x) |
| 8. Air-hostess / Air-sewaders | 54. Film-maker |
| 9. Architect / Acitec (sic) / Arcitect (sic) /
Archeitect (sic) / Architet (sic) / Arhitect
(9x) | 55. Fireman (9x) |
| 10. Army / Army Officer (4x) | 56. Fisher[man] |
| 11. Assistant Manager | 57. Fishmonger (2x) |
| 12. Astronomer (2x) | 58. Footballer (2x) |
| 13. Babysitter (2x) | 59. Gambler |
| 14. Basketball player | 60. Geologist (2x) |
| 15. Biographer | 61. Glassblower |
| 16. Book-seller | 62. Grocer |
| 17. Boss (3x) | 63. Hairdresser |
| 18. Botanist (2x) | 64. Housewife (3x) |
| 19. Broker | 65. Illustrator (4x) |
| 20. Bus attendant | 66. Instructor |
| 21. Bus driver (7x) | 67. Inventor (2x) |
| 22. Businessman (2x) | 68. Investigator |
| 23. Butler (4x) | 69. Janitor (2x) |
| 24. Caddie | 70. Keymaker |
| 25. Captain | 71. Kindergarten teacher |
| 26. Car repairer | 72. Lecturer |
| 27. Caretaker (3x) | 73. Life-guard |
| 28. Chairman | 74. Magician (2x) |
| 29. Charwoman | 75. Maid (8x) |
| 30. Chauffeur / Chauffeur / Cheuffaur (sic) (4x) | 76. Manager |
| 31. Chemist | 77. Matron |
| 32. Chief | 78. Midwife |
| 33. CID | 79. Minister (2x) |
| 34. Clown | 80. Model |
| 35. Coach (4x) | 81. Movers |
| 36. Cobbler (3x) | 82. Musician (4x) |
| 37. Commentator | 83. Navy |
| 38. Conductor (sic) / Conductor (2x) | 84. Newseller |
| 39. Conman | 85. Ornithologist |
| 40. Cook | 86. Paediatrician |
| 41. Councillor (sic) / Counselor (2x) | 87. Painter (2x) |
| 42. Dancer | 88. Pastor |
| 43. Delevery man | 89. Percussionist |
| 44. Directing Manager | 90. Petshop manager |
| 45. Director (7x) | 91. Photographer |
| 46. Disk jockey | 92. Pianist |
| | 93. Police / Policeman / Police officer (25x) |
| | 94. Postman (3x) |
| | 95. Potter |
| | 96. Presenter |
| | 97. President (3x) |
| | 98. Procecuter (sic) |
| | 99. Producer (2x) |
| | 100. Professor |

¹ Numbers in brackets indicate the number of times different pupils wrote this occupation down.

101. Project manager
102. Publiher (sic) / Publisher (2x)
103. Resercher
104. Salesman / Salesmen / salesgirl (4x)
105. Scientist (7x)
106. Sculptor .
107. Shoemaker
108. Shop attendant
109. Shopkeeper
110. Singer (7x)
111. Soccer player (5x)
112. Social worker
113. Soldier (3x)
114. Spy (2x)
115. Steeplejack
116. Stewardess
117. Story-teller
118. Supervisor (4x)
119. Sweeper
120. Taxi driver (11x)
121. Their/Criminal
122. Ticket officer
123. Traffic police
124. Train operator
125. Typist (3x)
126. Undertaker
127. Uphoster[er]
128. Vicar
129. Vice-president
130. Violinist (2x)
131. Waiter / Waitress (8x)
132. Welder
133. Woodcutter
134. Wrestler
135. Zoologist (2x)

List of Occupations Chosen

- | | |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 1. Actress | 46. Judge / Basketball judge |
| 2. Air Force* | 47. Manager (manger) |
| 3. Architect | 48. Mechanic |
| 4. Army officer | 49. Navy |
| 5. Artist | 50. New repartew (News reporter)* |
| 6. Astronomer | 51. Nurse |
| 7. Author | 52. Olympician |
| 8. Baby sitter | 53. Optician |
| 9. Baker | 54. Pastor / Vicar |
| 10. Barber | 55. Pilot |
| 11. Birdkeeper | 56. Plumber |
| 12. Boss / chief | 57. Policeman / Police / Traffic police
/ Policewoman /CID |
| 13. Bus driver | 58. Pop star / celebrity |
| 14. Butcher | 59. Postman |
| 15. Carpenter | 60. President |
| 16. Cashier | 61. Principle (Principal) |
| 17. Chef | 62. Professor |
| 18. Cobbler | 63. Receptionist |
| 19. Comander | 64. Referee |
| 20. Conductor | 65. Reporter |
| 21. Dancer | 66. Researcher |
| 22. Dentist | 67. Runner |
| 23. Designer | 68. Sailor |
| 24. Detective | 69. Salesman |
| 25. Doctor / Dorthier | 70. Scientist |
| 26. Electrician | 71. Shopkeeper |
| 27. Engineer | 72. Singer |
| 28. Environmentalist | 73. Soccer player / Footballer |
| 29. Explorer | 74. Social worker |
| 30. Firefighter / Firewoman / Fireman | 75. Soldier |
| 31. Flight attendant | 76. Spy |
| 32. Florist | 77. Stewardess / Air steward |
| 33. Fruiterer (dealer in fruit - <i>The Australian Pocket Oxford Dictionary</i>)/ Fruit seller | 78. Story-teller |
| 34. Gardener | 79. Supervisor |
| 35. Hairdresser | 80. Surgeon |
| 36. Hawker | 81. Tailor |
| 37. Housekeeper | 82. Taxi-driver |
| 38. Housewife | 83. Teacher / PE teacher / Art teacher
/ Dance teacher /Kindergarten
teacher |
| 39. Housing agent | 84. Vet / Veterinarian |
| 40. Illustrator | 85. Vice-Principal |
| 41. Inspector | 86. Violinist |
| 42. Lawyer | 87. Umpire |
| 43. Librarian | 88. Writer |
| 44. Liveguard | 89. Zookeeper |
| 45. Lorry driver | |

Occupations not chosen

- | | |
|--------------------------------------|----------------------------------------|
| 1. Actress/Actor | 52. Police / Policeman |
| 2. Artist | 53. Postman |
| 3. Author | 54. Principal |
| 4. Baker | 55. Referee |
| 5. Barber | 56. Reporter |
| 6. Bar-tender | 57. Robber / Burglar / Thief / Bad guy |
| 7. Bus Driver | 58. Sailor |
| 8. Butcher | 59. Security Guard |
| 9. Carpenter | 60. Servant |
| 10. Cashier | 61. Shop-keeper |
| 11. Chef | 62. Singer |
| 12. Cleaner / toilet cleaner | 63. Soccer player |
| 13. Clerk | 64. Sweeper |
| 14. Conman | 65. Tailor |
| 15. Construction worker /Constructor | 66. Taxi driver |
| 16. Dancer | 67. Teacher |
| 17. Dentist | 68. Technician |
| 18. Designer | 69. Telephone operator |
| 19. Detective | 70. Toymaker |
| 20. Doctor | 71. Umpire |
| 21. Drug seller | 72. Usher |
| 22. Electrician | 73. Vice-principal |
| 23. Engineer | 74. Wrestler |
| 24. Explorer | 75. Writer |
| 25. Fire-fighter / Fireman | 76. Zookeeper |
| 26. Fishmonger | |
| 27. Flight attendant | |
| 28. Florist | |
| 29. Fruit seller | |
| 30. Gambler | |
| 31. Gardener | |
| 32. Greengrocer | |
| 33. Hawker | |
| 34. Housekeeper | |
| 35. Housewife | |
| 36. Inspector | |
| 37. Jockey | |
| 38. Judge | |
| 39. Kitchen assistant | |
| 40. Lawyer | |
| 41. Librarian | |
| 42. Lorry driver | |
| 43. Maid | |
| 44. Manager | |
| 45. Mechanic | |
| 46. Model | |
| 47. Newsvendor | |
| 48. Nurse | |
| 49. Optician | |
| 50. Pilot | |
| 51. Plumber | |

Table 4-6-1: Comparison of Selected Occupations Across Educational Levels

<i>Lower Primary Only</i>	<i>Upper Primary Only</i>	<i>Both Lower & Upper Primary</i>
1. Air Force	1. Actress	1. Artist
2. Birdkeeper	2. Architect	2. Author
3. Bus driver	3. Army officer	3. Baker
4. Butcher	4. Astronomer	4. Barber
5. Carpenter	5. Baby sitter	5. Chef
6. Cobbler	6. Cashier	6. Dancer
7. Comander (sic)	7. Chief	7. Dentist
8. Conductor	8. Designer	8. Detective
9. Fruiterer / Fruit seller	9. Electrician	9. Doctor / Dorthier
10. Hairdresser	10. Environmentalist	10. Engineer
11. Hawker	11. Explorer	11. Firefighter / Firewoman / Fireman
12. Housekeeper	12. Flight attendant	12. Florist
13. Housewife	13. Housing agent	13. Gardener
14. Liveguard	14. Illustrator	14. Lawyer
15. Lorry driver	15. Inspector	15. Librarian
16. New repartew (News reporter)	16. Judge / Basketball judge*	16. Manager (manger)
17. Plumber	17. Mechanic	17. Nurse
18. Postman	18. Navy	18. Pilot
19. Surgeon	19. Olympician*	19. Policeman / Police / Traffic police / Policewoman /CID
20. Taxi-driver	20. Optician	20. Principle (Principal)
21. Vice-Principal	21. Pastor / Vicar	21. Scientist
	22. Pop star / celebrity*	22. Shopkeeper
	23. President	23. Singer
	24. Professor	24. Soccer player / Footballer
	25. Receptionist	25. Soldier
	26. Referee	26. Tailor
	27. Reporter	27. Teacher / PE teacher / Art teacher / Dance teacher /Kindergarten teacher
	28. Researcher	28. Vet / Veterinarian
	29. Runner*	29. Violinist
	30. Sailor	30. Writer
	31. Salesman	31. Zookeeper
	32. Social worker	

<i>Lower Primary Only</i>	<i>Upper Primary Only</i>	<i>Both Lower & Upper Primary</i>
	33. Spy	
	34. Stewardess / Air steward	
	35. Story-teller	
	36. Supervisor	
	37. Umpire	

*not listed by pupils in previous tasks of part C

Table 4-7-1: Comparison of Rejected Occupations Across Educational Levels

Lower Primary Only	Upper Primary Only	Both Lower & Upper Primary
1. Bus Driver	1. Bar-tender	1. Actress/Actor
2. Explorer	2. Clerk	2. Artist
3. Fishmonger	3. Conman	3. Author
4. Fruit seller	4. Dancer	4. Baker
5. Greengrocer	5. Designer	5. Barber
6. Model	6. Detective	6. Butcher
7. Optician	7. Drug seller	7. Carpenter
8. Toymaker	8. Flight attendant	8. Cashier
	9. Gambler	9. Chef
	10. Housewife	10. Cleaner / toilet cleaner
	11. Inspector	11. Construction worker /Constructor
	12. Jockey	12. Dentist
	13. Judge	13. Doctor
	14. Kitchen assistant	14. Electrician
	15. Maid	15. Engineer
	16. Nurse	16. Fire-fighter / Fireman
	17. Pilot	17. Florist
	18. Robber / Burglar / Thief / Bad guy	18. Gardener
	19. Singer	19. Hawker
	20. Soccer player	20. Housekeeper
	21. Sweeper	21. Lawyer
	22. Technician	22. Librarian
	23. Umpire	23. Lorry driver
	24. Usher	24. Manager
	25. Wrestler	25. Mechanic
		26. Newsvendor
		27. Plumber
		28. Police / Policeman
		29. Postman
		30. Principal
		31. Referee
		32. Reporter
		33. Sailor
		34. Security Guard
		35. Servant
		36. Shop-keeper
		37. Tailor
		38. Taxi driver
		39. Teacher

Lower Primary Only	Upper Primary Only	Both Lower & Upper Primary
		40. Telephone operator
		41. Vice-principal
		42. Writer
		43. Zookeeper

Table 4-8-1: Comparisons of Occupational Selections & Rejections by Boys and Girls

Occupational Selections by Girls	Occupational Rejections by Girls	Occupational Selections by Boys	Occupational Rejections by Boys
Actress	Actress (2x)	Airforce	Actor
Art teacher	Artist (8x)	Architect (3x)	Artist (4x)
Artist (13x)	Author (2x)	Army officer	Author (4x)
Astronomer	Baker (2x)	Artist (12x)	Bad guy
Author (11x)	Barber (5x)	Astronomer	Baker (3x)
Baby-sitter	Bartender (2x)	Author (5x)	Barber (2x)
Baker (2x)	Bus driver	Baker (2x)	Bar-tender (7x)
Barber	Butcher (8x)	Barber (2x)	Burglar
Butcher	Carpenter (5x)	Basketball judge	Bus driver
Cashier (3x)	Cashier (2x)	Birdkeeper	Butcher (7x)
Chef (3x)	Chef (4x)	Bus driver	Carpenter
Conductor	Cleaner / Toilet cleaner (10x)	Carpenter	Cashier
Dance Teacher	Clerk (4x)	Celebrity	Chef (2x)
Dancer (2x)	Construction worker (4x)	Chef (6x)	Cleaner / Toilet cleaner (12x)
Dentist (2x)	Dentist (9x)	Cobbler	Clerk
Designer (7x)	Designer	Comander	Conman
Detective (7x)	Doctor	Dentist (2x)	Construction worker (4x)
Doctor (28x)	Electrician (4x)	Designer (4x)	Dancer
Engineer	Engineer (4x)	Detective (9x)	Dentist (6x)
Environmentalist	Firefighter / fireman (6x)	Doctor (14x)	Designer
Firefighter / Firewoman	Fishmonger	Electrician	Detective
Flight attendant / stewardess	Florist (3x)	Engineer (5x)	Doctor (5x)
Florist (10x)	Fruit seller	Explorer (2x)	Drug seller
Gardener (4x)	Gardener (7x)	Fire fighter / fireman (9x)	Electrician(2x)
Hairdresser	Greengrocer	Fruiterer	Engineer
Hawker	Hawker (4x)	Gardener	Explorer
Housekeeper	Housekeeper	Hawker	Firefighter / fireman (8x)
Housewife	Housewife (2x)	Housing agent	Flight attendant (2x)
Judge	Inspector	Illustrator	Florist (3x)
Kindergarten teacher	Jockey	Inspector (3x)	Gambler
Lawyer (20x)	Judge (2x)	Judge (3x)	Gardener (4x)
Librarian (11x)	Kitchen assistant	Lawyer (7x)	Hawker (4x)
Lorry driver	Lawyer	Librarian (6x)	Housekeeper (4x)
Manager (4x)	Librarian (4x)	Liveguard	Jockey
Navy	Lorry driver (6x)	Manager (8x)	Judge (2x)
Nurse (19x)	Maid (2x)	Mechanic (2x)	Kitchen assistant
Optician	Manager	Olympician	Lawyer (2x)
Pastor	Mechanic (3x)	Optician	Librarian (3x)
Police / policeman / policewoman (9x)	Model	Pilot (6x)	Lorry driver (6x)
Principal (2x)	Newsvendor	Plumber	Manager (2x)

[illegible]

Table 4-9-1: Table of Supporting Reasons for Rejected Occupations

<i>Rejected Occupations</i>	<i>Supporting Reasons</i>
Bartender	<p>Fights are most likely to break out in bars; I hate being in the bar; Very boring; Malay cannot touch any alcoholic drinks; I do not like serving people; I hate bars; I am god's child and I do not want to be a drunkard; It's not good</p>
Cleaner / toilet cleaner	<p>Very smelly and dirty; I would not want to wash toilet bowls; Those who woke don't like me (sic) It is very difficult; I can't earn much and it is really tiring; It is not a <u>respectable</u> job; I hate toilets; Low wages; It is too embarrassing; It is a embarrassing job to do as the rating of the job is very very low; I don't like dirty place; We study hard and we could find another job than cleaner; I do (not) like being insulted, being a cleaner; I earn little money; I do not like to be a cleaner; My relative might saw me cleaning toilet and say bad words about me; I don't like cleaning toilets; I don't like to clen up somthing; I do not want to clean dirty places; People like to litter, spit and I will have to clean it up if I was a cleaner; I do not want to work for people; I don't want to be dirty;</p>
Construction worker	<p>Work to much The salary is low; Women are weak in construction*; It is too embarrassing; It was very dangerous for me to work as a construction worker; It will make me dirty; I don't like to stay under the sun; It is dangerous;</p>
Dancer	Dancing is for girls*
Fishmonger	I don't want to sell fish
Flight attendant	<p>A flight attendant is usually women*; It is very risky</p>
Fruit seller	I don't want to sell fruit

<i>Rejected Occupations</i>	<i>Supporting Reasons</i>
Greengrocer	I don't want to sell vegetables
Housekeeper	I need to keep the house clean; It is because can be very tired (tired); I am bored; It is boring at home and there will be no salary; I can't do house chores faster
Jockey	Very boring; Sometimes I can get hurt and I don't like to be hurt in anyway
Kitchen Assistant	I don't know how to cook; I would rather be a chef
Model	I don't like to go up stage
Newsvendor	I always have to give newspapers to every house I don't speak well; It does not have high salary; I do not want to be in a street selling newspaper
Security guard	I will get tired; It is a tiring job; I hate safety and security; Boring job; It is very tiring; It's a tiring occupation; I need to work until midnight; I don't want to sleep late; I don't like to order people; I don't want to get shoot (sic);
Servant	I always have to serve food; I don't like to serve food; It will be tiring for me to do all the work; I do not like to be ordered around; I hate to cook; I do not want to be like a dog I do not like to serve others; Could be tortued (tortured) by master; I don't like being scolded; I don't like to be ordered around! Will not earn a lot of money; It is very disgusting; I do not have to be control; It is very embrassing job; A servant gets hit by his/her master/mistress; I don't want to be paid less; I do not want to be commanded; I do not want to serve people;

<i>Rejected Occupations</i>	<i>Supporting Reasons</i>
	<p>I don't want to get ordered by someone; I need to do lots of work; It had to obey their master; I may be treated badly; I do not like to clean a lot of dirty things; I would be treated like a slave and I don't like to live torturing life; I don't want to be bossed around; I do not want to be told to do things for another person; I do not like to serve people; I don't want to work for others; I would have to serve rich people</p>
Telephone operator	<p>I am scared of wire; My hand will be tired Answer too much calls; It will be busy answering so many calls</p>

Table 4-10-1: Comparison of Occupations from Composition by Gender and Level

Lower Primary		Upper Primary	
Girls	Boys	Girls	Boys
1. Actor	1. Detective (2x)	1. Author	1. Architect
2. Art teacher	2. Doctor	2. Brain surgeon	2. Army
3. Artist (2x)	3. Inventor	3. Clinic doctor	3. Artist
4. Dancing teacher	4. Karate master	4. Detective	4. Athlete
5. Doctor (9x)	5. Librarian	5. Doctor (12x)	5. Child's specialist
6. Nurse (3x)	6. PE teacher	6. Engineer	6. Designer
7. Scientist	7. Policeman (6x)	7. Environmentalist	7. Detective (2x)
8. Teacher (6x)	8. Postman (2x)	8. Kindergarten teacher	8. Doctor (6x)
9. Violinist	9. Scientist	9. Lawyer (6x)	9. Electrician
10. Zookeeper	10. Soccer player	10. Nurse (6x)	10. Engineer
	11. Soldier (2x)	11. Police / Policewoman (2x)	11. Famous footballer
	12. Vet	12. Scientist (2x)	12. Fireman
		13. Soldier	13. HOD IT
		14. Teacher (15x)	14. Inspector
		15. Vet	15. Judge
		16. Violinist	16. Lawyer (2x)
			17. Manager (2x)
			18. Mathematician
			19. Pilot
			20. Police / Policeman (5x)
			21. Scientist (2x)
			22. Soccer player (2x)
			23. Soldier
			24. Spy
			25. Teacher (6x)
			26. Writer
			27. Zookeeper

Lower Primary Occupations

1. Actor
2. Art teacher
3. Artist (2x)
4. Dancing teacher
5. Detective (2x)
6. Doctor (10x)
7. Inventor
8. Karate master
9. Librarian
10. Nurse (3x)
11. PE teacher
12. Policeman (6x)
13. Postman (2x)
14. Scientist (2x)
15. Soccer player
16. Soldier (2x)
17. Teacher (6x)
18. Vet
19. Violinist
20. Zookeeper

Upper Primary Occupations

1. Architect
2. Army
3. Artist
4. Athlete
5. Author
6. Brain surgeon
7. Child's specialist
8. Clinic doctor
9. Designer
10. Detective (3x)
11. Doctor (18x)
12. Electrician
13. Engineer (2x)
14. Environmentalist
15. Famous footballer
16. Fireman
17. HOD IT
18. Inspector
19. Judge
20. Kindergarten teacher
21. Lawyer (8x)
22. Manager (2x)
23. Mathematician
24. Nurse (6x)
25. Pilot
26. Police / Policeman / Policewoman (8x)
27. Scientist (4x)
28. Soccer player (2x)
29. Soldier (2x)
30. Spy
31. Teacher (21x)
32. Vet
33. Violinist
34. Writer
35. Zookeeper